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UNION HYDRAULIC WORKS.

I. S. CASSIN & CO.

Second Street and Germantown Avenue,

PHILADELPHIA, PA.

1877.

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Union Hydraulic Works, established 1837.

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Isaac S. Cassin. Josiah Thompson.

UNION HYDRAULIC WORKS.

ESTABLISHED 1837.

I. S. CASSIN & CO.

(Successors to R. T. H. Stileman,)

Hydraulic and Gas Engineers,

SECOND STREET & GERMANTOWN AVE.,

PHILADELPHIA,

MANUFACTURERS OF

Stop-Valves, for Water and Gas Works, Fire Hydrants, Water Columns, Station Plugs, &c., for Railroads,

PUMPING ENGINES, PUMPS, BOILERS,
TURBINE AND OTHER WATER WHEELS, WATER ENGINES,
WATER METERS, HYDRAULIC RAMS, ETC.

Valves and Cocks of every variety and description, Water, Gas and Steam Gauges, Cast Iron Water and Gas Pipe, Branches, Bends, &c., Cast Iron Flange Pipe, Branches, Bends, &c., Wrought Iron Pipe and Fittings, Iron and Brass Work and Castings of all kinds, Machine Work, Blacksmithing and Pattern Making.

Union Hydraulic Works,
Second Street and Germantown Avenue.
PHILADELPHIA, 1877.

This is the oldest works of its kind in the United States, having been established in its present location, as far back as 1837, by the late Richard Stileman, Sr., who was a pioneer in the construction of Valves for Water and Gas Works, Fire Hydrants, Station Plugs, Water Columns for Railroads, &c., Pumps and Pumping Machinery and other supplies of this description. Its work may be found in a majority of the Water and Gas Works of the country, and its reputation for superior workmanship is second to none.

We have Patterns for all kinds of Valves and Cocks, and for Fire Hydrants, to meet all requirements.

Pumping Engines of a superior character, and of any capacity, can be furnished at the shortest notice. Steam Engines, Boilers, Pumps, Water Meters, Water Engines, Turbine Water Wheels, Hydraulic Rams, Gauges for Water, Steam and Gas, and all descriptions of Hydraulic and Gas apparatus and supplies.

We are the sole manufacturers of the celebrated "Stileman Valves," which have been so long in successful use in Water and Gas Works, and which have only increased in popularity and reputation for thorough efficiency and durability with the increased length of time which they have been in service.

We are the owners of all the valuable Patents of the late Richard T. H. Stileman, and are the only manufacturers of the various devices covered by these Patents.

I. S. CASSIN & CO.

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STREET STOP VALVES.—For Water Works, Gas Works, Railroads, &c.

BELL OR FLANGED ENDS.

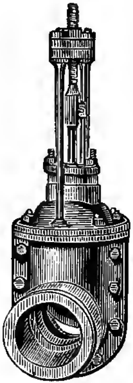
INTERNAL DIAMETER OF VALVE.	Gas —All Iron.		For Water.—Brass Working Surfaces.					
	Inside Screw.	Outside Screw.	Inside Screw.	Outside Screw. Cast Iron Stands.	Outside Screw. Wrought Iron Stands.	Diameter of Flanges.	Face to Face of Flanges.	Distance bet' bottoms of Bells.
	No. 1.	No. 2.	No. 1.	No. 2.	No. 3.			
3 inches. Price each.	$16 00	17 50	21 00	22 00	27 00	7½ in.	11¾ in.	4¾ in.
4 “ “ “	19 00	21 00	27 00	30 00	36 00	9 “	13½ “	6¼ “
6	27 00	30 00	40 00	44 00	54 00	11 “	14½	7
8	40 00	43 00	55 00	60 00	72 00	13½ “	17¼	7¼
10 “	57 00	62 00	70 00	75 00	90 00	16	17¾	7¾
12 “	72 00	80 00	84 00	100 00	110 00	19 “	18 “	9 “
14 “			140 00			21	19¾	10¼
16			185 00			23½	21½	11½
18			235 00			25½	23½	13¼
20			265 00			28½ “	24	13½ “
24 “			315 00			33 “	24½	14 “
30 “			375 00					

These Valves are constructed specially for the uses designated, and are strongly and heavily made, and are all double wedge valves, accurately fitted, and perfectly TIGHT ON BOTH FACES.

Those for water have brass faces to valves and seats, and brass opening screws and nuts, and will safely work up to all usual water works pressures.

Large sizes geared (Nos. 4 and 5) when ordered. Larger sizes made to order. Diameters and distances from face to face of Flanges changed as required.

STREET STOP VALVES.



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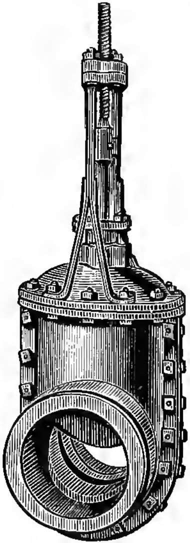

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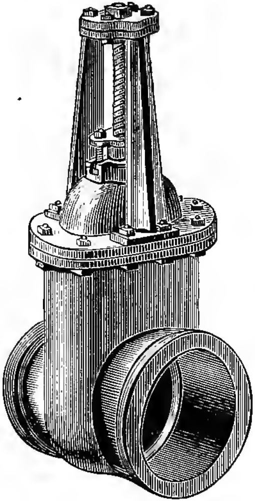

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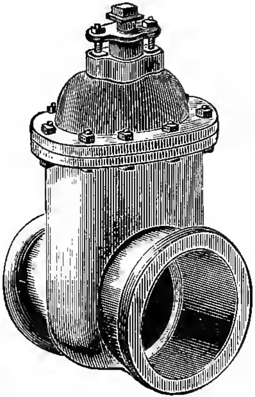

STREET STOP VALVES.

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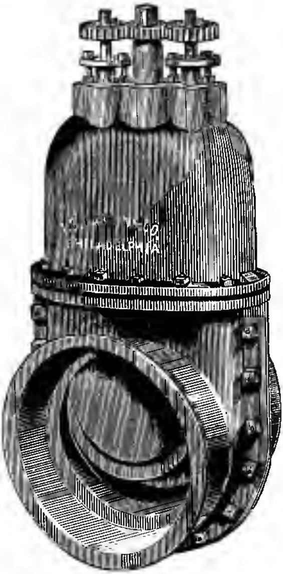

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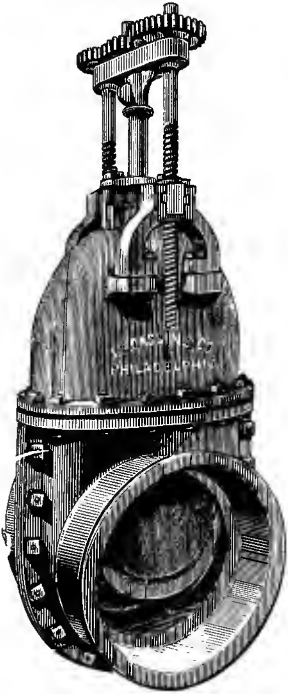


STREET STOP VALVES.

For Water Works, Gas Works, Railroads, Manufactories, &c.

All Valves guaranteed. Absolutely tight on both faces. For efficiency and durability are not equalled by any other valve. Have been in use in a majority of the Water Works and Gas Works in the United States for over forty years.

FIRE HYDRANTS.

A great variety of patterns. Hydrants to suit all purposes and requirements. Flush Hydrants; Hydrants for Steam Fire Engines; for ordinary fire service; for Railroads, Manufacturing Establishments and Public and Private Buildings and Grounds. The most efficient and durable and of handsome designs. We will guarantee the "Cassin Hydrants" positively non-freezing.

Any information cheerfully given, by addressing

I. S. CASSIN & CO.,
UNION HYDRAULIC WORKS,
Second Street and Germantown Avenue,
PHILADELPHIA, PA., U. S. A.

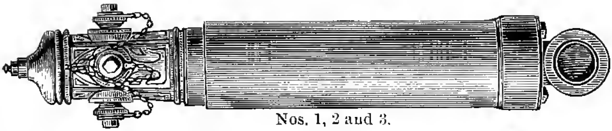
FIRE HYDRANTS.

		Price each
No. 1.	Three 2½ inch nozzles, Cassin Hydrant,	$50 00
No. 2.	Two 2½ " " " ..	45 00
No. 3.	One 2½ " " " "	40 00
No. 4.	One 2½ " " Case same design as No. 1,	33 00
No. 5.	One 2½ " " Philadelphia Pattern,	38 00
No. 6.	One 2½ " " " "	30 00
No. 7.	One 2½ " " Subway,	25 00
No. 8.	Indoor Hydrant, without attachment,	10 00

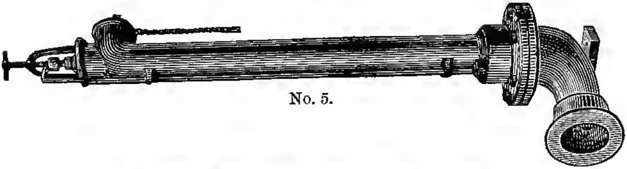
All these Hydrants have brass valve seats and fittings, and square threads on the opening screws. The wastes or drains on our Nos. 1, 2, 3 and 4, are of a new and superior character, and of much greater area, with less movement in opening and closing than usual, and arranged so the waste openings cannot become clogged up, or the Hydrant freeze. Nozzles of any size or description as may be ordered or required. Ordinary length 5 feet 3 inches between centres of inlet pipe and nozzle, but they are made to order of any length, or for any depth of line required. Nos. 1, 2, 3, 4 and 5 have long cases, extending down to the bottom of the stand-pipes.

All are furnished complete, and ready to attach to the supply main, and are fitted up in a superior manner, and Nos. 1, 2, 3 and 4 are acknowledged to be the handsomest Fire Hydrants now manufactured.

FIRE HYDRANTS.



Nos. 1, 2 and 3.



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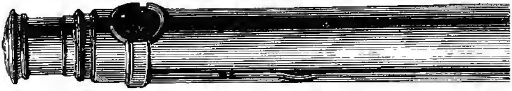

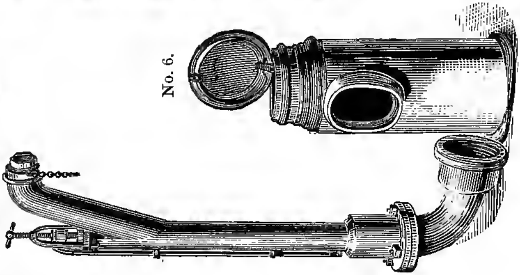

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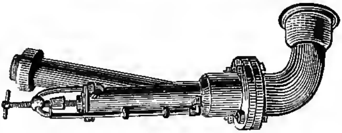

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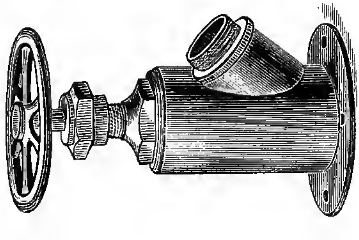


No. 8.

SUPPLY OR STAND-PIPE VALVES.

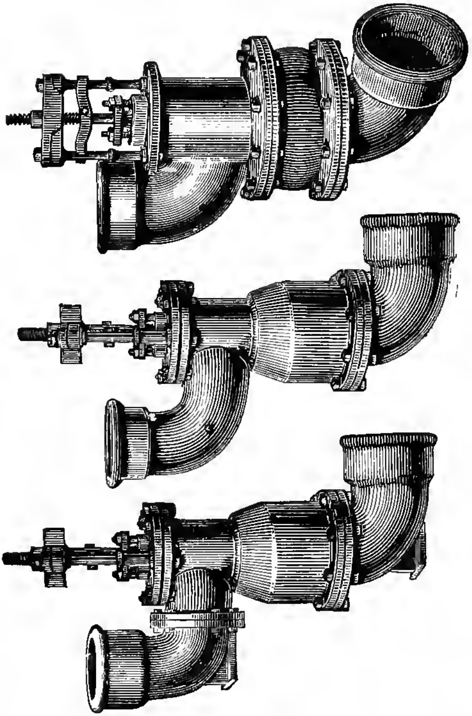
FOR RAILROAD WATER STATIONS.

Size.	Nos.	Brass Working Surfaces.	Price each.
4 inch.	1.	With Opening Wheel and Wrench,	$70 00
5 "	2.	" " " "	75 00
6 "	3.	" " " "	85 00
8 "	5.	" " " " & relief valve,	125 00
10 "	6.	" " " "	145 00

Stand Pipes extra, according to length, etc.

Station Plug and Water Column, for Railroads.

Complete. No. 7, $450 00.

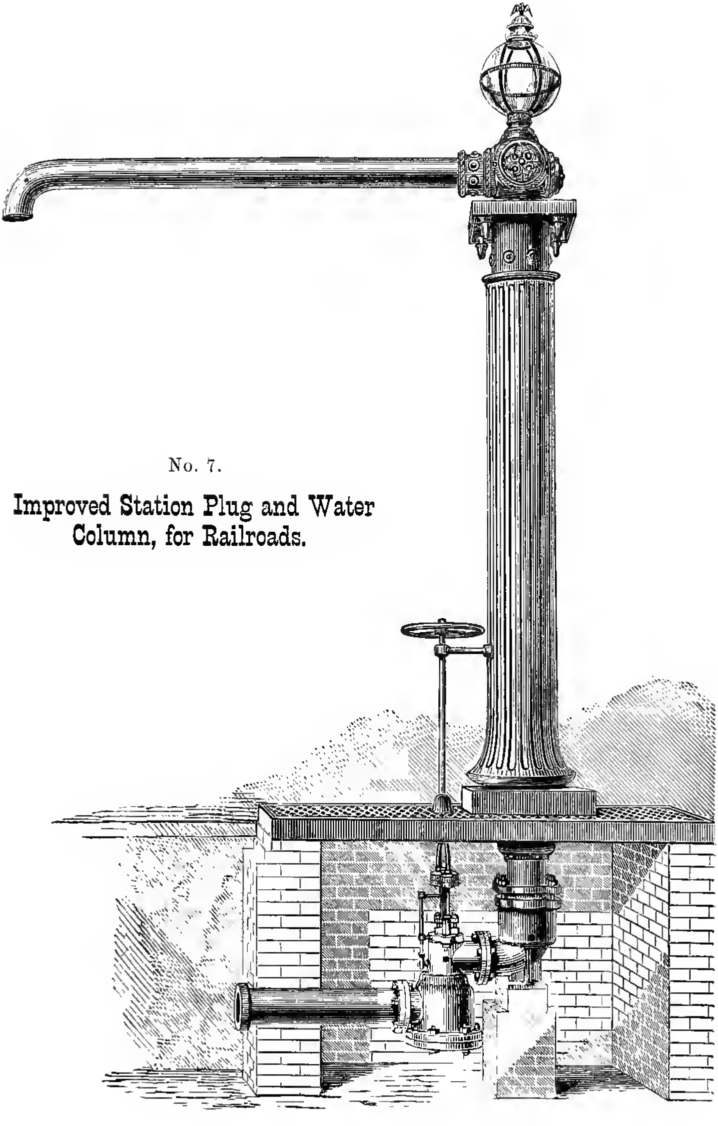


SUPPLY AND STAND PIPE VALVES.

Nos. 5 and 6.

Nos. 1, 2 and 3.

Nos. 1, 2 and 3.



No. 7.

Improved Station Plug and Water Column, for Railroads.

TANK VALVES.

Sizes,	4 in.	5 in.	6 in.	8 in.
Price, each,	$18 00.	$21 00.	$25 00.	$32 00.

Swivel and Swing Joint, for Water Column, -	$50 00
Brass Valve Stem and Valve, with Nut and Key, for Supply Valves, -	25 00
Valve and Valve Stem, for Stand Pipe,	18 00
Brass Nut, for Stand Pipe Valve	3 00
Valve Rod and Valve for Fire Hydrant, Nos. 1, 2 and 3,	7 50
" " " No. 4,	6 75
" " " Nos. 5, 6, and 7,	5 00
Yoke or Monkey and Screw, " " " "	7 50
Opening Wheel and Wrench, for Station Plug,	10 00

Stands for Stop Valves, per set, according to size and kind of Valve.

Wrenches or Keys for opening Street Stop-Valves.

Wrenches for opening 3 in. to 8 in., price, each,	$5 50
" " 10 in. to 16 in., "	7 00
" " 16 in. to 24 in., "	10 00

These Wrenches are made for either Inside or Outside Screw Stop-Valves, as required. They are strongly made, with one end of the handle steeled and pointed, for picking away the ice or earth, and for lifting the street cover.

CAST IRON GAS AND WATER PIPES.

INTERNAL DIAMETER.	1½	2	3	4	6	8	10	12	14	16	18	20	24	30	36	42	48
Weight per foot,																	
" " length,																	
Price per foot,																	
" " lb.,																	
" ton lbs.																	

Delivered at ....

....

All pipes above 2 inches are cast vertically, in lengths of 12 feet, clear of bell, and are tested by hydraulic press to such pressure per square inch as may be required, coated or plain, as ordered. Standard weights tested to 300 pounds pressure per square inch. Branches, Bends and Special Castings of all descriptions for the above sizes of water and gas pipes. Stop Valve Frames and covers for street, and for Curb Stop Cocks, Drips, Sewers, Drains, &c. Price per lb. cents. Price per ton, lbs., $

Delivered at ....

....

Caulking Tools. Hammers, Chisels, Furnaces for melting lead, Melting Pots, Lead Ladles, and all kinds of Tools for Pipe Laying, Fitting, &c.

Crow, for Drilling and Tapping Pipes.

No. 1.	For 1½ to 3 inch Pipe,	$10 00
No. 2.	For 1½ to 6 "	13 00
No. 3.	For 1½ to 12 "	16 00

Prices of Drills, Reamers, Taps, and other like tools, according to sizes, etc.

Drilling Machine for Drilling & Tapping Street Mains.

Machine complete, for any size pipe,	$30 00

Drills, Reamers, Taps, &c., extra.

WOOD'S PATENT PIPE CUTTER.

For Cutting Cast Iron Pipe. The only Machine made for this purpose.

Sizes.	Price each.
No. 1 Cuts 3, 4 and 6 in. Cast Iron Pipe and Wrought Iron Pipe and Flues,	$100 00
No. 2 Cuts 8, 10 and 12 in. Cast Iron Pipe and Wrought Iron Pipe and Flues,	125 00
No. 1 A, Differing from Nos. 1 and 2 in adjusting parts ; a more finished and complete machine,	125 00
No. 2 A, Differing from Nos. 1 and 2 in adjusting parts; a more finished and complete machine,	150 00
No. 3 Cuts 14, 16, 18 and 20 in. Cast Iron pipe,	250 00
No. 4 Cuts 24 and 30 in. " " "	300 00

These Machines will cut pipe in a trench or building, as well as loose Cast or Wrought Iron Pipe, Shafts, Columns, &c., of any size, leaving the ends clean, smooth and square. There is no risk of breaking or cracking the Pipe, nor danger of injuring or loosening the contiguous joints, as is the case in cutting in the old way, with hammer and chisel. The machine is simple in construction, easy to work, and not liable to get out of order. It is in fact a hand lathe, operated with a gearing or ratchet, the tool traveling around the pipe instead of, as in the ordinary lathe, the work revolving. Any ordinary cutting-off tool is used, and cuts the pipe entirely through, leaving the ends smooth, true and sound.

CAST IRON FLANGE PIPES.—Flanges Faced and Drilled.

Lengths, Thicknesses, Diameters of Flanges, &c. of any dimensions ordered.

INTERNAL DIAMETER.	1½	2	2½	3	3½	4	4½	5	5½	6	8	10	12	14	16	18	20	24
Diameter of Flanges.																		
Thickness of Flanges.																		
Length from face to face of Flanges.																		
Number of Bolt Holes in each Flange.																		
Size of Bolts to be used.																		
Diam. of circle on which Bolt Holes are drilled.																		
Weight per foot.																		
" length.																		
Price per foot.																		
lb.																		
ton lbs.																		

Delivered at ....

Branches, Bends and Special Castings, with Flanges faced and drilled, of all descriptions for the above sizes of Pipes. Price per lb. cents. Price per ton lbs. $

Delivered at ....

GAS WORKS.

Castings and Apparatus, Bench Castings, Hydraulic Mains, Condensers, Washers, Scrubbers, Purifying Boxes, Exhausters, Retorts and Retort Lids, Centre Seals, Dry Centre Valves, Trays for Purifiers, Coke and Coal Barrows and Carts, Wrought Iron Trussed Roof, Telescopic and Single Gas Holders and Columns, &c., for same. Castings and Wrought Iron work of every description, and all kinds of Meters, Drips, Gauges, Implements and Instruments for Gas Works.

LAMP POSTS, BRACKETS, &c.

For Street Lamps, Public Grounds and Buildings, Manufactories, Private Grounds and Buildings.

Price according to style, dimensions, etc.

WROUGHT IRON PIPE.

FOR GAS, STEAM AND WATER.

INSIDE DIAMETER.	Price ⅌ foot. Plain.	Price ⅌ foot. Galv., Enam'l'd or Rubber Coated.	Price ⅌ foot. Extra Strong.	Price ⅌ foot. Double Extra Strong.
⅛ inch.	.06		.13	
¼ "	.06	.11	.13	
⅜ "	.07	.12	.15	
½ "	.07	.12	.15	.30
¾ "	.09	.16	.20	.40
1 "	.12½	.22	.33	.66
1¼ "	.18	.30	.38	.76
1½ "	.22	.34	.57	1.14
2 "	.31	.45	.72	1.44
2½ "	.46	.70	1.36	2.72
3 "	.60	.90	1.71	3.42
3½ "	.80	1.20	2.18	4.36
4 "	1.00	1.50	2.75	5.50
4½ "	1.25	1.80	4.85	9.70
5 "	1.50	2.20	5.70	11.40
6 "	2.00	3.25	7.00	14.00
7 "	2.85			
8 "	3.50			
9 '	6.00			
10 "	8.50			

IRON FITTINGS FOR WROUGHT IRON PIPE.—Plain.

SIZE.	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8
Elbows, each,	5	6	8	9	12	18	26	36	48	86	1 40	2 00	2 60	3 80	4 50	6 00	9 50	12 00
" 45°				10	14	20	30	40	52	90	1 45	2 10	3 75	4 00	4 75	6 50		
Tees	6	8	10	13	16	24	35	48	70	1 20	1 85	2 60	3 25	4 50	5 60	7 60	12 00	16 00
Y Branches						35	55	75	1 10	2 10	3 00	4 75	5 70					
Cross Branches				18	24	35	45	70	90	1 60	2 50	3 75	5 00	6 00	7 00	10 00	15 00	20 00
Return Bends, close				15	20	30	45	56	90	1 60	2 25	3 50	4 50					
" " open				16	24	35	50	70	1 10	1 75	2 50	3 75						
Plugs		4	5	6	7	8	11	15	24	40	55	75	1 00	1 25	1 50	1 90	3 00	4 50
Reducers			8	10	12	16	20	30	45	75	1 25	1 75	2 25					
Couplings	5	6	7	8	13	14	19	22	38	70	1 00	1 40	1 50	2 00	2 50	3 60		
Bushings			7	8	10	12	15	20	30	45	70	1 00	1 30	1 85	2 10	3 00	4 00	5 00
Lock Nuts		4	5	6	7	8	12	16	22	35	50	65	90	1 10	1 40	2 00		
Nipples, shld or close	4	4	5	6	8	10	14	18	30	50	75	1 00	1 50	2 00	2 60	3 70	5 60	8 00
" long 6 to 12 in.	7	8	9	10	13	15	20	30	40	70	1 00	1 40	1 90	2 50	3 20	5 00		
Long Screw	23	28	31	43	60	70	1 00	1 20	1 60	2 70	3 50	4 90	6 00	7 00				
Wrought Iron Bends				28	37	56	77	1 12	1 65									
Caps		5	9	7	8	10	15	20	30	50	80	1 25	1 80	3 00	3 75	4 50		

GALVANIZED IRON FITTINGS.

SIZE.	3/8	1/2	3/4	1	1¼	1½	2	2½	3	3½	4	5	6
Elbows	10	14	18	26	36	52	80	1 80	2 50	4 00	5 00	8 00	11 75
Tees	14	18	24	35	55	75	1 20	2 20	3 40	5 60	6 40	9 25	14 50
Nipples	10	12	16	22	30	40	60	90	1 30	2 00	2 60		
Couplings	8	10	15	20	25	32	50	1 00	1 60	2 40	3 00	3 25	5 00
Caps and Plugs	8	9	10	15	22	30	45	80	1 25	1 75	2 50		

Malleable Iron Fittings, from 10 to 25 cents per pound, according to size, etc.

FLANGES.—Screwed for Wrought Iron Pipe.

Price each.

DIAMETER OF FLANGE.	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8
3 inch.	15	18														
3½ “	18	20	23													
4	20	22	24	26	30											
4½ ‘	26	28	30	32	36											
5 ‘	32	35	36	38	44	48										
5½ ‘	38	40	43	46	50	55	60									
6	45	48	52	55	58	62	66	75								
6½ ‘		60	65	68	72	75	80	85								
7 ‘			76	80	83	86	88	94	1 00							
7½ ‘			88	90	92	95	98	1 05	1 12							
8 “				1 05	1 07	1 10	1 13	1 20	1 22	1 32	1 42					
8½					1 25	1 27	1 30	1 35	1 40	1 48	1 57					
9 “					1 40	1 43	1 48	1 52	1 58	1 65	1 75					
9½ “						1 60	1 63	1 70	1 75	1 82	1 90					
10 “							1 80	1 90	1 95	2 00	2 10	2 30	2 40	2 60		
11							2 10	2 20	2 30	2 40	2 55	2 75	3 00	3 20		
12 “							2 50	2 65	2 75	2 80	3 00	3 30	3 50	3 75	4 25	
13 ‘											3 70	3 90	4 00	4 20	4 90	5 75
14 “											4 30	4 55	4 60	4 75	5 50	6 50

Curved Flanges 25 per cent. additional. Blank Flanges per lb., 6 cents.

MANIFOLDS.—Branch Tees.

PRICE EACH.

NUMBER OF OUTLETS.	2	3	4	5	6	7	8	9	10	12
¾ in. Outlet, 2¼ in. Centres	60	72	88	1 00	1 25	1 50	1 80	2 10	2 40	
1 in. " 2½ in. "	70	88	1 10	1 40	1 70	2 00	2 30	2 60	2 95	3 70
1 in. " 2½ in. 2 in. run		1 35	1 60	2 00	2 50	2 95	3 30	3 80	4 10	5 30

Back or Side Outlets, of same size as Front Outlets, will be charged as additional Front Outlet; other sizes proportionally.

HOOK AND EXPANSION PLATES.

PRICE EACH.

NUMBER OF HOOKS.	1	2	3	4	5	6	7	8	9	10	12
Hook Plates for ¾ in. Pipe	10	14	20	28	40	50	60	70	80	90	
" " 1 in. "	12	16	26	36	46	56	67	76	86	1 00	1 20
Expan. " ¾ in. "	16	21	30	40	50	64	76	88			
" " 1 in. "	20	26	34	44	55	70	85	1 00			

COIL SLATS.

NUMBER OF PIPES WIDE.	3	4	5	6	7	8	9	10
Slats, each	20	25	30	35	40	45	55	60
Bottom and Top Plates, and Feet, per pair	60	1 10	1 20	1 50	1 60	1 80	2 00	2 25

COIL STAYS.

NUMBER OF PIPES HIGH.	6	8	10	12	14	16	18	20
For ¾ inch Pipes, ⅌ pair	60	85	90	1 20	1 40	1 60		
For 1 " "	85	1 05	1 45	1 70	1 90	2 00	2 25	2 50

MALLEABLE IRON UNIONS.

SIZE.	¼	⅜	½	¾	1	1¼	1½	2	2½
PRICE, EACH.	16	22	28	36	46	64	80	1 20	2 10

Flange Unions, with Bolts and Nuts.

SIZE.	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8
PRICE, EACH	1 15	1 25	1 45	1 70	2 00	2 40	3 00	3 70	4 75	5 60	7 00	11 00	15 00

EXPANSION JOINTS.

PRICE EACH.

SIZE.	¾	1	1¼	1½	2	2½	3
Brass Finished	2 75	3 50	4 50	6 50	9 00	16 00	24 00
" Rough	2 00	2 75	3 50	5 50	8 00	14 50	22 00

SIZE.	2	2½	3	3½	4	5	6	8
Iron	7 00	12 00	18 00	26 00	30 00			
" Flanged			20 00	28 00	32 00	46 00	60 00	96 00

LEAD PIPE & TIN-LINED LEAD PIPE.

WEIGHTS PER FOOT.

Calibre of Pipe.	A A A Weight per foot.		A A Weight per foot.		A Weight per foot		B Weight per foot.		C Weight per foot.		D Weight per foot.		D Light Weight per foot.		E Weight per foot.		E Light Weight per foot.	
inch's	℔	oz	℔	oz	℔	oz	℔	oz	℔	oz	℔	oz	℔	oz	℔	oz	℔	oz
⅜	1	8	1	5	1	2	1	0	0	13	0	10			0	8		
½	3	0	2	0	1	12	1	4	1	0	0	13			0	11	0	9
⅝	3	8	2	12	2	8	2	0	1	12	1	8	1	4	1	0	0	12
¾	4	8	3	8	3	0	2	4	2	0	1	12	1	8	1	4	1	0
1	6	0	4	12	4	0	3	4	2	8	2	0			1	8		
1¼	6	12	5	12	4	12	3	12	3	0	2	8			2	0		
1½	9	0	8	0	6	4	5	0	4	4	3	8			3	4		
2	10	12	9	0	7	0	6	0	5	4	4	0						

Lead Pipe per ℔ 9 cts. Tin-Lined Lead Pipe per ℔ 16½ cts.

Pig Lead per ℔ cts.

PATENT TIN-LINED IRON PIPE.

Inside Diameter	½	¾	1	1¼	1½	2
Price per foot	16 cts.	22 cts.	30 cts.	40 cts.	50 cts.	75 cts.

COATED OUTSIDE WITH RUST PREVENTIVE.

Price per foot	17 cts.	23 cts.	32 cts.	42 cts.	53 cts.	80 cts.

Malleable Iron Fittings, with Tin Lining.

SIZE.	½	¾	1	1¼	1½	2
Tees, each	15 cts.	25 cts.	35 cts.	45 cts.	60 cts.	90 cts.
Elbows, each	15 cts.	20 cts.	30 cts.	40 cts.	55 cts.	80 cts.
Couplinge, each	10 cts.	15 cts.	20 cts.	25 cts.	35 cts.	45 cts.

Tinned Brass Ferrules.—To be used with Tin Lining.

SIZE.	½	¾	1	1¼	1½	2
Price per doz.	30 cts.	40 cts.	50 cts.	60 cts.	70 cts.	90 cts.

FERRULES FOR STREET MAINS,

Screwed, or Taper for Driving.—Brass.

SIZE.	⅜	½	⅝	¾	1
Plain, for driving into Main, per doz.	3 00	3 25	3 50	4 00	6 00
Screwed, for tapping into Main, per doz.	3 25	3 50	3 75	4 25	6 50
" both ends, for Iron Pipe, per doz.	3 75	4 00	4 25	4 75	7 25
Weights, each,	9 oz.	10 oz.	10½ oz	¾ lb.	1⅛ lb.
Price per pound.					

The above are the standard sizes for either top or side Ferrules, and are furnished complete, ready to insert in the Mains.

Any other sizes or designs will be furnished to order. Those screwed, for Iron Pipe, are slightly heavier than the above weights.

Stop-Cock Box Frame and Cover.—Hinged.

Price, each, 75 cts. Pattern of Plumber's address, $3 00.

Wash Pave or Street Washer Box Frame and Cover.

HINGED.

Price, each, $1 30. Pattern of Plumber's address, $ 3 00.

Long Stop-Cock Box, with Hinged Cover.

Each, $3 25.

The word Water or Gas will be cast on the Covers of the above without additional charge.

Wash Pave or Street Washer, with Long Box,

COVER AND FITTINGS COMPLETE.—HINGED COVER.

Length,	3 ft.	4 ft.	5 ft.
Price, each,	$8 50	$9 50	$10 50

Wash Pave or Street Washer, & Hitching Post Comb.

WITH FITTINGS COMPLETE.—HINGED COVER.

Length,	3 ft.	4 ft.	5 ft.
	$18 00.	$20 00.	$22 00.

Valves for Water, Steam or Gas.

IRON BODY. BRASS MOUNTED.

Size.	Screwed Ends.	Flanged Ends.	Quick Opening.
1½ inch.	$5 00		
2 "	6 50	7 00	8 30
2½ "	10 50	11 40	13 75
3 "	14 00	14 90	17 30
3½ "	17 50	18 40	21 30
4 "	20 00	21 00	24 50
5 "	26 25	26 25	30 60
6 "	31 50	31 50	36 75
7 "	40 00	42 00	
8 "	45 50	45 50	
10 "		57 00	
12 "		70 00	

SMALL VALVES, ALL BRASS.—Screwed Ends.

Size	3/8	1/2	3/4	1	1¼	1½	2	2½	3
Price, each,	1 00	1 20	1 65	2 00	2 90	4 10	6 00	12 00	17 00

All of the above Valves when open have clear water ways directly through them, of the full areas of their several diameters.

BACK PRESSURE VALVES.

Size.	2	2½	3	3½	4	5	6
Price, each.							
Screwed ends,	$10 00	14 00	16 00	20 00	23 00	33 00	43 00
Flanged ends,	11 00	15 00	18 00	22 00	25 00	35 00	45 00

Globe or Angle Valves.—Iron Body. Brass Mounted.

SIZE.	1¼	1½	2	2½	3	3½	4	5	6	8
Screwed ends.	3 25	4 25	6 00	9 00	13 00	19 00	24 00	35 00	48 00	
Flanged "	4 00	5 00	7 00	11 00	15 00	21 00	27 00	38 00	50 00	100 00
Diam. of Flanges.	5 in.	5½ in.	6½ in.	7 in.	8 in.	9 in.	10 in.	11 in.	12 in.	14 in.
Distance bet. "	4½ in.	5 in.	6 in.	7½ in.	8 in.	9½ in.	11 in.	12 in.	13⅜ in.	18 in.

Globe Valves. All Brass. Screwed Ends.

SIZE.	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4
Price, each.	90	90	1 00	1 35	1 85	2 50	3 50	4 75	7 35	14 00	20 00	33 00	50 00
" " ex. heavy			1 50	2 00	2 75	3 75	5 25	7 00	11 00	20 00			

Angle Valves.—All Brass. Screwed Ends.

SIZE.	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4
Price, each.	90	1 00	1 35	1 85	2 50	3 50	4 75	7 35	14 00	20 00	33 00	50 00
" " ex. heavy			2 00	2 75	3 75	5 25	7 00	11 00	20 00			

Iron Body Cross Valves.—Brass Mounted.

SIZE.	1½	2	2½	3	3½	4	5	6
Screwed ends.	5 50	7 50	11 50	16 00	22 00	30 00	44 00	60 00
Flanged ends.	6 25	8 75	13 75	18 00	25 00	36 00	50 00	65 00
Diam of Flanges.		6½ in.	7 in.	8 in.	9 in.	10 in.	11 in.	12 In.

Cross Valves. All Brass.—Screwed Ends.

Size.	½	¾	1	1¼	1½	2	2½	3
Price, each.	1 65	2 25	3 00	4 25	5 70	9 75	16 75	24 00

Radiator Valves. All Brass.

Size.	½	¾	1	1¼	1½
Price, each.	2 25	2 75	3 75	6 00	8 50
Nickel Plated.	5 00	6 00	8 00	11 00	14 00

Double Flange Valves. All Brass. Steam Metal.

Size.	1	1¼	1½	2	2½	3	3½	4	5	6
Price, each.	5 00	8 00	11 00	16 00	23 00	32 00	50 00	70 00		

Angle Flange Valves. All Brass. Steam Metal.

SIZE.	1¼	1½	2	2½	3	3½	4	5	6
Price, each.	9 00	12 00	17 00	25 00	34 00	52 00	75 00		

Hose Valves. All Brass.—Steam Metal.

SIZE.	2	2¼	2½
Price, each,	16 00	20 00	23 00

Check Valves. Horizontal or Angle. Screwed Ends. All Brass.

SIZE	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Price, each.	75	75	1 00	1 25	1 75	2 75	3 50	6 00	13 00	16 00

Vertical Check Valves. Screwed Ends.—All Brass.

SIZE.	½	¾	1	1¼	1½	2	2½	3
Price, each.	1 00	1 10	1 50	2 50	3 25	5 50	10 00	15 00
Cap on Side.	1 30	1 60	2 25	3 50	4 50	7 00	14 00	18 00

Iron Throttle Valves.—Screwed Ends.

SIZE.	1	1¼	1½	2	2½
Price, each.	8 75	11 00	11 25	16 25	25 00

The above are of new and superior construction.

Iron Body Check Valves.

SIZE.	1½	2	2½	3	3½	4
Price, each.	3 00	5 00	8 00	12 00	16 00	22 00
Flanged ends.		6 00	9 00	13 00	18 00	25 00

Iron Body Safety Valves.—Brass Mounted. Screwed.

SIZE.	1¼	1½	2	2½	3	3½	4	5	6
Price, each.	4 25	5 75	8 25	14 00	20 00	28 00	33 00	48 00	65 00

Brass Safety Valves.—Screwed.

SIZE.	½	¾	1	1¼	1½	2	2½	3
Price, each.	3 00	4 00	5 00	7 00	9 00	12 00	20 00	35 00

Iron Flanged Safety Valves.—Brass Mounted.

SIZE.	2	2½	3	3½	4	5	6
Price, each.	10 00	16 00	22 00	30 00	38 00	50 00	68 00

Pump Valves.—All Brass. Screwed.

SIZE.	½	¾	1	1¼	1½
Price, each, Plain.	2 50	3 50	4 50	6 00	10 00
" " with Air Chamber.	3 75	4 50	6 00	8 00	12 00
' " " Try Cock.	4 50	5 25	6 75	9 00	13 00

Foot Valves and Strainers.

SIZE.	¾	1	1¼	1½	2	2½	3	3½	4	5	6
Brass for Iron Pipe.	2 50	3 00	4 00	6 00	7 50						
" " Lead or Copper Pipe.	2 50	3 00	4 00	6 00	7 50						
Iron, for Iron Pipe.	1 75	1 75	2 50	3 00	3 50	4 50	5 50	7 00	9 00	15 00	25 00

IRON COCKS.

SIZE.	½	¾	1	1¼	1½	2	2½	3	3½	4
Screwed ends, each...	75	95	1 25	1 65	2 40	3 50	5 00	7 00	11 00	15 00
Flanged ends,...........						4 50	6 00	9 00	13 00	17 00
Brass Plug...............	1 30	1 70	2 20	3 00	4 00	7 00	12 00	18 00	30 00	40 00
Three-way			1 90	2 50	3 25	5 00	8 00	14 00	21 00	32 00
" " Brass Plug			2 70	3 50	4 60	8 00	13 50	23 00	36 00	53 00

Steam Cocks, all Brass.—Screwed Ends.

SQUARE OR FLAT HEADS.

Size.	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4
Price, each	75	90	1 25	1 75	2 50	4 00	5 25	7 50	15 00	21 00	32 00	44 00
Ex. Heavy			1 75	2 50	3 50	5 60	7 35	10 50	20 00	30 00		
3 way "			2 00	3 00	4 00	6 50	8 00	12 50	25 00	35 00		
Flanged.						12 00	15 00	22 00	44 00	60 00		
Diam. of Fl.						4½in	5 in.	6 in.	7 in.	7½ in.		

Double Flange Cocks.—Steam Metal.

SIZE.	1	1¼	1½	1¾	2	2½	3	3½	4	5	6
Price, each,	6 00	8 00	10 00	12 00	14 00	21 00	32 00	48 00	74 00		
Diam. of Fl.	4 in	4½	5in.	5½	6in.	7in.	7½in	9in.	10in.	11 in.	12 in.
Dist. bet. Fls	4¼	5⅛	6in.	6½	7in.	8in.	9in.	9½in	10⅜in	12 in.	13½in.

Hose Cocks. Steam Metal.—Single Flange.

Price each.	Price each.
2¼ inch, $16 00.	2½ inch, $20 00.

Hose Caps, with Chain.

SIZE.	¾	1	1¼	1½	2	2½
Price, each.	1 00	1 50	1 75	2 25	2 75	3 50
Rough, without Chain or Swivel.	50	75	90	1 25	1 50	2 00

Thread for Fire Hose, or other thread to order.

Packed Plug Steam Cocks.—Steam Metal.

SIZE.	¾	1	1¼	1½	2	2½	3
Screwed ends, each	4 00	5 50	6 75	8 00	13 00	20 00	33 00
With Flanges.		8 00	11 00	12 00	20 00	30 00	48 00
Diam. of "			4½ in.	5 in.	6 in.	7 in.	7½ in.

Air Cocks and Valves.—All Brass.

From $6 00 to $16 50 per dozen, according to style and finish.

Cylinder Cocks.—All Brass.

From $8 00 to $18 00 per dozen, according to style and finish.

Gauge Cocks.

Of all patterns and styles, from $10 00 to $130 00 per dozen.

Locomotive Heater Valve and Cock.

All Brass finished.

Valves, each, $7 00. Cocks, each, Packed plug, $9 00.

Steam Bibb Cocks. All Brass.—Screwed.

PER DOZEN.

SIZE.	1/4	3/8	1/2	5/8	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Finished	16 00	18 00	21 00	25 00	33 00	45 00	65 00	90 00	130 00	216 00	324 00
Rough	14 00	16 00	18 00	22 00	30 00	42 00	57 00	80 00	118 00	204 00	300 00
Screw ends, finished	18 00	21 00	25 00	32 00	40 00	51 00					
" " rough	16 00	18 00	22 00	28 00	36 00	48 00					
With Coupling, finished	20 00	24 00	30 00	36 00	44 00						
" " rough	18 00	21 00	27 00	33 00	40 00						

Steam Bibb Cocks. All Brass.—Flanged.

SIZE.	1	1 1/4	1 1/2	1 3/4	2	2 1/2	3	3 1/2	4
Finished, each	6 00	8 00	10 00	13 00	18 00	25 00	35 00	48 00	65 00
Rough, "	5 00	7 00	9 00	11 00	16 00	22 00	30 00	42 00	60 00
Diameter of Flanges	4 1/2 in.	5 in.	5 1/2 in.	6 in.	7 in.	7 1/2 in.	9 in.	10 in.	

Steam Stop Cocks. All Brass.—Screwed.—Per Dozen.

Size.	¼	⅜	½	⅝	¾	1	1¼	1½	1¾	2
Single Coupling, finished	21 00	24 00	30 00	36 00	42 00	57 00	78 00	120 00	141 00	152 00
" " rough	18 00	22 00	27 00	33 00	39 00	50 00	69 00	108 00	129 00	132 00
Double Coupling, finished	22 00	27 00	33 00	39 00	45 00	72 00	96 00	136 00	155 00	175 00
" " rough	20 00	24 00	30 00	36 00	42 00	63 00	87 00	126 00	144 00	160 00
Bent Coupling, finished	24 00	27 00	33 00	40 00	48 00	63 00				
" " rough	21 00	24 00	30 00	36 00	42 00					

Plumbers' Brass Cocks.—Per Dozen.

Size.	¼	⅜	½	⅝	¾	1	1¼	1½	1¾	2	2¼	2½	3
Plain Bibb, finished	11 00	12 00	13 50	16 00	20 00	28 00	50 00	65 00	100 00	115 00	200 00	220 00	300 00
" " rough	9 00	10 00	11 50	14 00	18 00	25 00	44 00	58 00	84 00	96 00	160 00	180 00	225 00
" " Fire-plated	24 00	27 00	30 00	36 00	44 00	60 00							
' " Nickel-plated	18 00	20 00	22 50	27 00	33 00	45 00							
Screw Tail, finished	13 00	14 00	16 00	20 00	24 00	33 00	56 00	72 00	108 00	132 00		234 00	315 00
" " rough	11 00	12 00	14 00	18 00	22 00	30 00	50 00	65 00	92 00	113 00		216 00	300 00
For Iron Pipe, no shld. fin			14 50	17 00	21 00	30 00							
" " " rough			12 50	15 00	19 00	27 00							
' " " Fire-plated			31 00	37 00	45 00	62 00							
" " ' Nickel-pl't			24 00	28 00	34 00	46 00							
" " Screw shk & shld	14 00	15 00	16 00	20 00	24 00	33 00	60 00	75 00		136 00			
" " rough	12 00	13 00	14 00	18 00	22 00	30 00	54 00	68 00		118 00	192 00		276 00
" " Flg'd & thim., fin.			22 00	26 00	30 00	40 00							
" " Fire-plated			44 00	52 00	60 00	80 00							
" " Nickel-plated			33 00	39 00	45 00	60 00							

Hose Bibb Cocks.—Per Dozen.

SIZE.	½	⅝	¾	1	1¼	1½	1¾	2	2½
For Lead Pipe, finished	16 00	20 00	24 00	33 00	60 00	75 00	115 00	136 00	
“ “ “ rough	14 00	18 00	22 00	30 00	54 00	68 00	98 00	118 00	204 00
“ ‘ “ Fire-plated	33 00	40 00	48 00	66 00					
“ “ Nickel-plated	25 00	30 00	36 00	50 00					
“ Iron ‘ no shoulder, finished	17 00	21 00	25 00	34 00					
“ “ “ rough	15 00	19 00	23 00	31 00					
“ “ “ Fire-plated	34 00	41 00	49 00	67 00					
“ ‘ “ Nickel-plated	26 00	31 00	37 00	51 00					
“ “ “ Screw Shank, shol'd fin.	21 00	24 00	28 00	38 00	70 00	85 00		156 00	
“ “ rough	19 00	22 00	26 00	35 00	64 00	78 00		138 00	204 00
Flanged and Thimble	24 00	28 00	34 00	44 00					
“ “ Fire-plated	48 00	56 00	68 00	88 00					
“ Nickel-plated	36 00	42 00	51 00	66 00					

Rough Stop Cocks, Tee Handle.—With or without Waste, Curb Stop Cocks, &c.

PER DOZEN.

SIZE.	¼	⅜	½	⅝	¾	1	1¼	1½	2
Rivet Bottom	8 50	8 50	9 00	10 50	12 50	21 00	32 00		
Nut and Washer Bottom	9 00	9 00	11 00	13 00	15 00	24 00	40 00	50 00	96 00
	Stop on Key, $1 50 per dozen additional.								
Lever Handle and Waste	10 00	10 00	12 00	14 00	16 00	25 00	42 00		

Rough Stop Cocks, Lever Handle.—For Lead Pipe.

SIZE.	¼	⅜	½	⅝	¾	1	1¼	1½	1¾	2	2¼	2½	3	3½	4
Price per Doz	9 00	9 00	11 00	13 00	15 00	24 00	40 00	50 00	74 00	96 00	160 00	180 00	225 00	300 00	550 00

Rough Stop Cocks.—For Lead and Iron Pipe.

SIZE.	⅜	½	⅝	¾	1
Price per Dozen.	12 00	14 00	16 00	18 00	27 00

Round Way Stop Cocks.—Tee or Lever Handle.

SIZE	½	⅝	¾	1	1¼	1½
Price per Dozen.	15 00	18 00	24 00	39 00	60 00	72 00
" with Waste.	16 50	19 50	25 50	41 00	63 00	75 00

Hose Stop Cocks.—Rough, for Lead or Iron Pipe, or Tank.

SIZE.	¾	1	1¼	1½	1¾	2	2¼	2½	3
Price per Dozen.	24 00	33 00	60 00	75 00	115 00	136 00	180 00	240 00	300 00

Plain Stop Cocks.—For Lead Pipe.—Per Dozen.

SIZE.	¼	⅜	½	⅝	¾	1	1¼	1½	1¾	2
Finished	11 00	12 00	13 50	16 00	20 00	28 00	50 00	65 00	100 00	115 00
Fire-plated........	24 00	27 00	30 00	36 00	44 00	60 00				
Nickel-plated.....	18 00	20 00	22 50	27 00	33 00	45 00				

Finished Stop Cocks.—For Iron Pipe.

SIZE.	⅜	½	¾	1	1¼	1½	2
Price per Dozen..................	18 00	21 00	30 00	40.00	66 00	84 00	156 00
Fire-plated..	36 00	39 00	51 00	64 00			
Nickel-plated.......................	27 00	30 00	42 00	56 00			

Rough Stop Cocks.—Lever or Tee Handle.—Screwed for Iron Pipe.

SIZE.	¼	⅜	½	⅝	¾	1	1¼	1½	2
Price per Dozen..................................	12 00	14 00	16 00		21 00	30 00	50 00	63 00	117 00
One end scrw'd inside for Iron Pipe, other Lead	11 00	12 00	14 00		18 00	27 00	45 00	56 00	106 00
Waste for Iron Pipe.........		15 00	18 00		24 00	33 00	54 00		
Roundway "		18 00	21 00		30 00	45 00	66 00	84 00	164 00
" ' Stop and Waste..............		19 00	22 00		31 00	46 00	68 00		
Heavy, for Lead Pipe..................................			18 00	24 00	33 00	45 00			
" " with Stop and Waste.....			20 00	26 00	36 00	48 00			
" for Iron Pipe, " "			21 00		36 00	48 00			
' " " '			23 00		38 00	51 00			

Hydrant Cocks.—Per Dozen.

SIZE.	½	⅝	¾	1
Rivet Bottom, for Lead Pipe..........	11 00	13 00	16 00	27 00
Nut and Washer Bottom................	13 00	16 00	18 00	33 00
Rivet Bottom, Roundway................	15 00	19 00	24 00	36 00
Nut and Washer Bottom, Roundway	17 00	21 00	27 00	42 00
Screwed for Iron Pipe, Rivet Bottom	18 00	21 00	24 00	39 00
Nut & Washer Bottom, for Iron Pipe..	21 00	24 00	27 00	45 00
Rivet Bottom, Roundway..........	22 00	26 00	33 00	54 00
Nut and Washer Bottom, Roundway..	25 00	29 00	36 00	57 00
One end screwed Inside for Iron Pipe the other for Lead Pipe, Rivet Bottom	15 00	18 00	21 00	33 00

Ferrule, or Corporation Cocks.—For Lead, Iron and Cement Pipe.

SIZE.	⅜	½	⅝	¾	1	1¼
Price per Dozen	11 00	14 00	18 00	24 00	40 00	60 00

Compression Cocks.—Per Dozen.

SIZE.	3/8	1/2	5/8	3/4	1	1¼
Plain Bibb and Stop Cock, for Lead Pipe, Finished	13 00	15 00	18 00	24 00	30 00	45 00
" " " Rough.	11 00	13 00	16 00	22 00	27 00	41 00
' ' Fire-plated	27 00	30 00	36 00	48 00	60 00	
Nickel-plated.	21 00	23 00	30 00	39 00	45 00	
Plain Bibb for Iron Pipe, no Shoulder, Finished,	14 00	16 00	19 00	25 00	31 00	
" " " Rough	12 00	14 00	17 00	23 00	29 00	
" Screw Shank & Shld, Finished	16 00	18 00	21 00	27 00	34 00	50 00
" Rough	14 00	16 00	19 00	25 00	31 00	47 00
' Fire-plated	30 00	33 00	39 00	51 00	63 00	
' ' Nickel-plated	24 00	26 00	33 00	42 00	48 00	
Flange & Thimble, Finished		24 00	27 00	33 00	42 00	
' ' " " Fire-plated		48 00	54 00	66 00	84 00	
' ' " ' Nickel "		36 00	39 00	48 00	57 00	
" Fl'ge Nut & Bent Coup., Finis.		36 00	45 00	60 00		
' " " Fire-plated		60 00	72 00	93 00		
' " " Nickel "		48 00	57 00	76 00		
Stop Cocks, for Iron Pipe, Finished	19 00	21 00		30 00	39 00	
" " Rough	17 00	19 00		27 00	36 00	
' ' with Waste, Finished	20 00	22 00		31 00	37 00	
' ' " Rough	18 00	20 00		29 00	35 00	
" for Lead Pipe, ' Finished,	16 00	18 00	21 00	27 00	33 00	
' " Rough	14 00	16 00	19 00	25 00	31 00	

Compression Hose Bibb Cocks.—For Lead Pipe.

SIZE.	½	⅝	¾	1	1¼
Finished, per Dozen	18 00	21 00	27 00	34 00	50 00
Rough, "	15 00	18 00	24 00	30 00	46 00
Fire-plated	33 00	39 00	51 00	63 00	
Nickel-plated "	27 00	33 00	42 00	48 00	

Compression Hose Bibb Cocks.—For Iron Pipe. No Shoulder.—Per Dozen.

SIZE.	½	⅝	¾	1
Finished......	16 00	19 00	25 00	31 00
Rough	14 00	17 00	23 00	28 00

Compression Hose Bibb Cocks.—For Iron Pipe. Screw Shank and Shoulder.

SIZE.	½	⅝	¾	1	1¼
Finished	21 00	24 00	30 00	38 00	54 00
Rough	18 00	21 00	27 00	35 00	51 00

Compression Hose Bibb Cocks.—Flanged and Thimble.

Size.	½	⅝	¾	1
Price per Dozen, Finished ...	27 00	30 00	36 00	46 00
" " Fire-plated	51 00	57 00	69 00	87 00
" " Nickel "	39 00	42 00	51 00	60 00

Compression Ball Cocks.—Per Dozen.

Size.	⅜	½	⅝	¾	1
For Lead Pipe......	11 00	14 00	16 00	21 00	36 00
" Iron Pipe.......	14 00	17 00	19 00	24 00	39 00

Compression Hydrant Cocks.—Per Dozen.

Size.	½	⅝	¾	1
For Lead Pipe	18 00	21 00	27 00	33 00
" Iron Pipe..............	24 00		33 00	39 00

Street Washer and Stop Combined.—Screwed for Iron Pipe.

Size.	½	¾	1
Rivet Bottom, per dozen..................	40 00	50 00	76 00
Nut and Washer Bottom, per dozen...	45 00	56 00	84 00
" " Roundway, "	50 00	72 00	102 00

BALL COCKS.—Plain, Rough. Per Dozen.

Size.	⅜	½	⅝	¾	1	1¼	1½	2
For Lead Pipe, no Shld'r	9 00	11 00	13 00	18 00	30 00	48 00	60 00	100 00
For Iron Pipe................	10 00	12 00	14 00	20 00	33 00	51 00		
" " Shk & Shld	14 00	16 00	18 00	24 00	36 00	54 00	75 00	120 00

COCKS FOR STEAM GAUGES.

Screwed for ¼ in. Pipe.—Per Doz.

Tee Handle, Screwed both Ends,	$8 00
Lever " " " " with Coupling,	18 00
" " " " " Ground Joint,	21 00

SERVICE COCKS.—Square or Flat Heads.

SIZE.	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Price, each.	60	60	80	1 00	1 50	2 80	3 80	6 00	10 00	16 00

PLAIN METER COCKS.

SIZE.	½	¾	1	1¼	1½	2
Price, each	80	1 10	1 50	3 00	4 00	6 00

UNION METER COCKS.

SIZE.	⅜	½	¾	1	1¼	1½	2	2½	3
Price, each......	80	1 00	1 30	1 75	3 50	4 75	7 00	12 00	20 00

STREET LAMP COCKS.

SIZE.	⅜	½	¾
Price per dozen...	3 50	5 00	7 50

PILLAR COCKS.

SIZE.	⅛	¼	⅜	½
Per dozen...	2 75	3 50	4 00	5 00
Extra Heavy		4 75	5 00	

TANK VALVES.

1½ inch, $9 00 per Dozen. 2 inch, $12 00 per Dozen.

SEWER VALVES.

SIZE.	3	4	5	6
Per dozen	48 00	60 00	84 00	108 00

PLAIN COUPLINGS.—Brass. Per Dozen.

SIZE.	¼	⅜	½	⅝	¾	1	1¼	1½	1¾	2	2½	3
Finished...........	$4	5	6	7	9	11	15	21	27	30	36	42
" Gr'd face			7	9	11	13	18	25	30	36	42	50

VALVE COUPLINGS.—Brass. Per Dozen.

SIZE.	½	¾	1	1¼	1½	1¾	2	2½
Finished, for Lead Pipe..	$18	21	25	30	36	45	57	72
" Scw'd Iron "	21	25	30	36	45	57	72	

WATER BACK COUPLINGS.—Straight. For Iron Pipe.

SIZE.	½	¾	1
Plain, per dozen...	12 00	14 00	20 00
Grd face, "	14 00	16 00	22 00

WATER BACK COUPLINGS.—Bent. For Iron Pipe.

SIZE.	½	¾	1
Plain, per dozen ..	14 00	16 00	22 00
Grd face, "	16 00	18 00	24 00

BATH BOILER COUPLINGS.

¾ inch per set, per Dozen, - $60 00.

STRAINERS.—Brass. Disk.

SIZE.	1¼	1½	2	2½	3	3½	4	5	6
Per dozen	1 00	1 25	1 50	2 00	2 50	3 00	4 00	8 00	10 50

IRON STRAINERS.—Screwed. For Iron Pipe.

SIZE.	1	1¼	1½	2	2½	3
Price each	75	90	1 00	1 25	1 75	2 50

SUCTION BASKETS.—Brass. Screwed.

SIZE.	1½	2	2¼	2½	3	3½	4	5	6	7	8
Price, each	4 00	5 00	6 00	7 00	10 00	13 00	17 00	20 00	30 00	40 00	60 00

FILTERS.

Porous Stone, Nickel-plated, per Dozen,	$21 00
Sponge Filters, " " "	12 00

HOSE COUPLINGS.—For Gum Hose.

SIZE.	½	¾	⅞	1	1¼	1½	1¾	2	2¼	2½	3
Per Dozen.	3 50	3 50	7 00	7 00	15 00	21 00	24 00	33 00	36 00	50 00	60 00

HOSE COUPLINGS.—With Bands for Linen or Leather Hose.

SIZE.	1½	2	2¼	2½	3
Per Dozen...	27 00	39 00	50 00	60 00	80 00

FIRE HOSE COUPLINGS.—With Clamps.

SIZE.	2¼	2½	3
Per Dozen.	50 00	60 00	80 00

DOUBLE FEMALE COUPLINGS.

SIZE.	2½ inches,	Price, each,	$4 50

DOUBLE MALE COUPLINGS.

SIZE.	2½ inches,	Price, each,	$3 00

SUCTION HOSE COUPLINGS.

SIZE.	2	2½	3	3½	4	4½	5	5½	6
Per Dozen.	45 00	80 00	96 00	120 00	150 00	180 00	216 00	232 00	250 00

FITTINGS.—For Leather or Gum Hose Pipe.

SIZE, 2 inch, $3 00 per set. 2½ inch, $3 50 per set

IRON FLANGE COUPLINGS.—For Suction Hose.

SIZE.	2½	3	3½	4	4½	5	5½	6	6½	7
Price, each	6 00	7 00	8 50	10 00	12 00	14 00	18 00	20 00	24 00	26 00

HOSE SPRINKLERS.

1½ in., for ¾ and 1 in. Hose Pipes, per Dozen,	$5 00
2 in., " " " "	8 00
3 in., " " " "	12 00

With Nipple, for Gum Hose, add $1 50.

HOSE NIPPLES.—Threads for Hose Coupling and Iron Pipe.

SIZE.	½	¾	1	1¼	1½	2	2½	3	3½	4
Price, each.	45	50	60	80	1 00	1 20	2 25	3 50	4 50	5 50

HOSE CAPS.—With Chain.

SIZE.	¾	1	1¼	1½	2	2½
Price, each................................	1 00	1 50	1 75	2 25	2 75	3 50
" Rough, without Chain or Swivel	50	75	90	1 25	1 50	2 00

SOLDERING UNIONS.

SIZE.	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Per Doz.	2 50	3 50	4 00	6 00	8 00	11 00	16 00	24 00	33 00	42 00

SOLDERING NIPPLES.

SIZE.	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Per Dozen.	1 50	2 00	2 50	4 00	5 00	6 50	8 00	24 00	33 00	42 00

WASH PAVE SCREWS.

SIZE.	$\frac{1}{2}$	$\frac{3}{4}$	1
For Lead Pipe, Short, per Dozen.		5 50	7 50
" " Long, "		7 00	10 00
" Iron Pipe, Short, "	6 00	7 50	12 00
" " Long, "	7 50	9 00	14 00

HYDRANT NOZZLES,—Plain, for Lead Pipe.

$\frac{3}{4}$ inch, $7 00 per Dozen. 1 inch $13 00 per Dozen.

HYDRANT SCREW NOZZLES.—For Lead Pipe.

SIZE.	$\frac{5}{8}$	$\frac{3}{4}$	1
Price, per Dozen.	7 00	8 00	15 00

HYDRANT SCREW NOZZLES.—For Iron Pipe.

SIZE.	$\frac{1}{2}$	$\frac{3}{4}$	1
Price, per Dozen.	8 00	10 00	16 00

STEAM PUMPING ENGINES,

FOR ALL PURPOSES,

Such as Water Works Engines, Condensing or Non-Condensing; Air and Circulating Pumps, for Marine Engines; Stationary Steam Fire Engines; Boiler Feed Pumps; Wrecking Pumps; Mining Pumps; Pumps for Hydraulic Pressure; Pumps for supplying Railroad Water Stations, &c., &c.

When ordering a Pump, the following questions should be answered: 1st. To what service is it to be applied? 2d. The quality of the liquid to be pumped, whether salt, fresh, acid, clear or gritty; and whether it is to be pumped cold or hot? 3d. To what *height* is the water to be lifted *by suction*, and what is the length of the suction pipe? 4th. Of what material is the suction pipe, and what is its general arrangement as regards other pipes leading into it, &c.? 5th. To what height, or against what pressure is the water to be pumped? 6th. What is the greatest quantity of water needed per hour? 7th. What pressure of steam is used?

H. R. WORTHINGTON'S DUPLEX STEAM PUMPS.

Diam. of Steam Cylinders...	4½ in.	6 in.	7½ in.	10 in.	12 in.	14 in.	14 in.	16 in.	18½ in.	14 in.	18½ in.	14 in.
Diam. of Water Plungers....	2¾ in.	4 in.	4½ in.	6 in.	7 in.	7 in.	10¼ in.	10¼ in.	10¼ in.	14 in.	14 in.	15 in.
Length of Stroke	4 in.	6 in.	10 in.	10 in.	10 in.	10 in.	10 in.	10 in.	10 in.	10 in.	10 in.	15 in.
Single Strokes per minute varying with kinds of work and pressure..	150to200	120to160	120to160	100to150	100to150	100to150	100to150	100to150	100to150	100to150	100to150	100to150
Displacement in gallons, per single Stroke..........	$\frac{11}{100}$	$\frac{34}{100}$	$\frac{72}{100}$	$1\frac{28}{100}$	$1\frac{74}{100}$	$1\frac{74}{100}$	$3\frac{73}{100}$	$3\frac{73}{100}$	$3\frac{78}{100}$	7	7	$11\frac{47}{100}$
Mean pumping cap. ℔ hour	11,155	2,856	6,048	9,600	13,050	13,050	27,975	27,975	27,975	52,500	52,500	86,025
" " " " 24 "	27,720	68,544	145,152	230,400	313,200	313,200	671,400	671,400	671;400	1,260,000	1,260,000	2,064,600
Prices.............................	$225	$400	$700	$800	$900	$1000	$1,300	$1,400	$1,500	$1,600	$1,750	$2,250

H. R. WORTHINGTON'S SAFETY STEAM PUMPS.

Numbers designating sizes..	No. 1.	No. 2.	No. 3.	No. 4.	5 1st pat	5 2d pat	6 1st pat	6 2d pat	6 3d pat	7 1st pat	7 2d pat	7 3d pat
Diam. of Steam Cylinders...	3¾ in.	5 in.	6½ in.	9 in.	12 in.	16 in.	12 in.	16 in.	18½ in.	12 in.	16 in.	18½ in.
Diam. of Water Plungers....	2¼ in.	3 in.	4½ in.	6 in.	7 in.	7 in.	10¼ in.	10¼ in.	10¼ in	14 in.	14 in.	14 in.
Length of Stroke	3 in.	6 in.	9 in.	9 in.	9 in.	9 in.	9 in.	9 in.	9 in.	9 in.	9 in.	9 in
Single Strokes per minute varying with kinds of work and pressure........	80 to 175	80 to 150	80 to 150	80 to 150	80 to 150	80 to 150	75 to 125	75 to 125	75 to 125	70 to 120	70 to 120	70 to 120
Displacement in gallons, per single Stroke..........	$\frac{54}{1000}$	$\frac{19}{100}$	$\frac{64}{100}$	$1\frac{1}{10}$	$1\frac{56}{100}$	$1\frac{56}{100}$	$3\frac{36}{100}$	$3\frac{36}{100}$	$3\frac{36}{100}$	$6\frac{27}{100}$	$6\frac{27}{100}$	$6\frac{27}{100}$
Mean pumping cap. ℔ hour	416	1 311	4,416	7,590	10,764	10,764	20,160	20,160	20,160	35,739	35,739	35,739
" " " " 24 "	9,914	31,464	105,984	182 160	258,336	258.336	483,840	483 840	483,840	857,736	857,736	857,736
Prices.............................	$80	$150	$250	$400	$500	$550	$625	$700	$775	$750	$825	$900

Many patterns of various proportions, of sizes larger than the above, arranged with or without expanding and condensing apparatus. These prices are for Pumps fitted with Iron Plungers, Brass Rings and Valve Seats, which long experience proves to be best adapted for ordinary fresh water pumping, and with Rubber or Metal Valves, as may be preferred. Pumps fitted with Brass Plungers and Piston Rods, 10 per cent extra. Boxing and shipping charged extra, at cost.

N. B.—In case of fire or other emergency, the speed of the Pump may be considerably increased beyond the figures stated above.

CASSIN'S IMPROVED FIRE PROTECTION.

FOR WATER WORKS.

This is a variable pressure appliance, for changing the works from ordinary service to fire service. It can be adjusted in less than one minute, to give any pressure upon the mains, and the excess of pressure will be relieved by discharge into the reservoir, stand pipe, tanks or pumping well. By this device, works having a low head can be made to give any head or pressure required for fire purposes, and the reservoir and direct pumping systems are effectively combined, by the application of this apparatus. It is simple, durable, and inexpensive, and combines the check, safety discharge, etc., in one valve, and in one chamber. The register is graduated to head in feet, and to pounds pressure per square inch.

Furnished of any size, from 2 inches to 48 inches diameter.

Prices and information given upon application.

IRON AND BRASS PUMPS.

A full line of Iron and Brass Cistern, Well, Force and Lift Pumps, Yard, Drive Well, Garden Engine and Steam Boiler Pumps.

	PRICE, EACH
Iron Cistern Pumps, 2¼ to 3¾ in. Bore	$3 50 to $8 00
Molasses, or Hot Liquid Pump. 2½ to 4½ in. Bore, Iron	12 00 to 25 00
" " " " " Brass	20 00 to 42 00
Pitcher Spout Pump, Spring Valve, 2½ to 4½ in Bore, Iron	4 25 to 6 25
Fountain Cistern Pump, Brass Valve Seat, 2¼ to 3 in. Bore, Iron	4 25 to 5 50
Anti-Freezing Cistern and Well Pump, 2½ to 3¼ in. " "	7 75 to 9 00
Drive Well Pumps, 2½ to 3¼ in. Bore, Iron	8 25 to 9 00
Yard Well Pumps, Anti-Freezing, 2¼ to 4 in. Bore, Iron	8 00 to 15 00
Open Top Stock, Anti-Freezing Lift Pumps, 5 in. Bore, Iron.	16 00
Close " " " " " "	18 00
Anti-Freezing Shallow Well Force Pumps, 2¾ to 3¼ in. Bore, Iron,	13 00 to 14 00
Deep Well Lift Pumps. 1½ to 4 in. Bore, Iron	14 00 to 20 00
" Force Pumps, 2¼ to 3 in. " "	17 00 to 18 50
House Force Pumps, various desighs, 2 to 4 in. Bore, Iron	8 00 to 25 00
Double Acting Force Pumps, Tight and Loose Pulleys, for Power, 2 to 4 in. Bore, Iron	39 00 to 63 00
Double Acting House Force Pumps, 2 to 4½ in. Bore, Iron	16 00 to 50 00
Railroad Force Pumps, for Hand use, 4 to 5 in. " "	25 00 to 45 00
" " " for Power. 4 to 5 in. " "	26 00 to 50 00
Double Acting Force Pumps, for Steamboats, Factories, &c., 3 to 6 in. Bore, 2 Iron Cylinders	35 00 to 75 00
Double Acting Force Pumps, for Steamboats, Factories, &c., 3 to 6 in. Bore, 2 Brass Cylinders	45 00 to 105 00

Column Force Pumps, Single. T. & L. Pulleys, 2½ to 4½ in. Bore	75 00 to 140 00
" " " Double, " " " "	95 00 to 205 00
" " " " Geared, 3 to 4½ in. Bore, Iron	130 00 to 230 00
Steam Boiler Force " Hand and Power, 1¼ to 5 in. " "	10 00 to 90 00
Hydraulic Pressure Pumps, for Testing Pipes, Boilers, Hose, &c., 1¼ in. Plungers, Iron	25 00
Brass Air Pumps, 2 in. Bore, 6 in. Stroke	15 00
Brass Cylinder Cistern Pumps, 2½ to 3¼ in. Bore	6 00 to 10 00
" " Force " 1 to 4 in. Bore	14 00 to 110 00
" Ale Pumps, for Counter use	7 00 to 8 00
Plumber's Force or Pressure Pumps	14 00 to 20 00
Gas Drip Pumps, for Gas Works and Plumbers', Brass	12 00 to 15 00
Hand and Power Rotary Oil Pumps	26 00 to 55 00
" Rotary Force Pumps, for Cisterns and Shallow Wells	19 00 to 45 00
Rotary Power Pumps, Iron or Brass, for Mills, Railroads, &c.	60 00 to 650 00
" Fire Pumps, for Manufactories, &c., various capacities	170 00 to 275 00
Centrifugal Pumps, Iron or Brass, various styles and sizes	24 00 to 240 00
Windmill Pumps, " "	9 50 to 55 00
Portable Force Pumps and Fire Extinguishers, 2 Iron Cylinders	165 00
" " " " " 2 Brass "	200 00
Green-house and Garden Engines and Pumps, all styles	8 00 to 40 00

Any information and details of capacities, sizes, styles, prices, etc., given upon application. Parties wishing to purchase, will please state the purpose for which they intend to use a Pump, with such particulars as may appear to suit the circumstances. Pumps of all kinds and for every conceivable purpose, and all the parts and repairs furnished and made.

WATER ENGINES.

To be driven by Water Pressure.

These Engines are simple in their construction, economical and durable; require no skill in their management, but only the opening and closing of a valve. Being a Cylinder and Piston Engine, they run with great economy of water, and light pressures. The small Engines are well adapted to driving Sewing Machines, Small Lathes, Jig Saws, Printing Presses, Organs, Elevators, Washing Machines, Wringers, Coffee Mills, Meat Cutters, and work of like character.

1 inch	Piston,	3½ inch	stroke	Price,	$40 00
1½ "	"	6 "	"	"	100 00
1¾ "	"	6 "	"	"	100 00
2 "	"	6 "	"	"	100 00
2½ "	"	6 "	"	"	110 00
3 "	"	8 "	"	"	125 00
3½ "	"	8 "	"	"	135 00
4 "	"	8 "	"	"	150 00
4½ "	"	8 "	"	"	175 00
4½ "	"	15 "	"	"	200 00
5 "	"	12 "	"	"	225 00
6 "	"	12 "	"	"	250 00

WATER METERS.

Union Water Meter.

SIZE.	⅝	¾	1	1¼	2	3	4	6	8
No. of Meter.	1	2	3	4	5	6	7	8	9
Galls. deliv'd per 10 hours.	2000	4000	8000	17,000	34,000	64,000	150,000	300,000	600,000
Price............	25 00	37 50	50 00	90 00	150 00	300 00	500 00	750 00	1000 00

Nos. 1, 2 and 3 are Brass, the other sizes are Iron, Brass-lined. The gallons of water given per day is the amount of actual work as an average, which is considered the most economical use for the life of the Meter, although under emergencies and under high heads, the Meters will double this amount of delivery.

Boxing, extra.

GEM WATER METER.

SIZE.	½	¾	1	1½	2	3	4	6
Weight of Meter. lbs.	5	6	7	11	15	40	80	125
Dischge ℘ min. cubic ft.	2	6	8	18	32	96	128	288
" " galls.	15	45	60	135	240	720	960	2160
Price..........................	15 00	20 00	25 00	50 00	75 00	150 00	275 00	600 00

Quantity of water discharged under 60 lbs. pressure.

Greater pressures will give greater discharges.

Larger sizes to order. Connections for Setting, furnished without additional charge. Boxing, extra.

THE "DESPER WATER METER."

Size.	Pipe.	Cap. ℘ minute.	Weight, complete.	Price.
No. 1.	⅝ inch.	8 gallons.	18 pounds.	$20 00
No. 2.	¾ "	16 "	30 "	28 00
No. 3.	1 "	35 "	50 "	40 00
No. 4.	1½ "	60 "	90 "	65 00
No. 5.	2 "	100 "	150 "	115 00

Nos. 1 and 2 are entirely of Composition Metal. Nos. 3, 4 and 5, are all Composition Metal except the Cylinder Heads.

The above are the ordinary capacities of the Meter, which are warranted, when working under usual circumstances, but they will deliver double the amounts under high pressurss. Will stand a pressure of 250 lbs. per square inch. Simple and durable in construction, and has been subjected to the most rigorous tests, with entire success.

To Water Companies wishing to test the merits of this Meter, we will send a No. 1 on trial, for three months, to be returned at our expense, if not satisfactory. Boxing extra.

WATER PRESSURE REGULATOR.

The object of this apparatus is to reduce a high pressure to any lower pressure, so as to relieve distributing and service pipes and fixtures from extraordinary strain. Prices according to requirements, sizes, etc.

BACK PRESSURE REGULATOR.

This Regulator is for controlling steam in Heating Pipe, where exhaust from an engine is used to keep the back pressure on the engine uniform, at any pressure desired, and will control the live steam as well as the exhaust.

SIZE.	2	2½	3	4	6
Price, each.	100 00	125 00	150 00	200 00	250 00

TURBINE WATER WHEELS.

Turbine Wheels of all sizes and powers furnished to order.

Small Turbine Weeels for driving small machines, or anything requiring light power, as low as $20 each. Some of the small sizes can be attached to a common hydrant or water spigot.

Prices and full information, upon application.

We ask the special attention of the public to the Risdon Turbine Water Wheel, believing that for economy in the use of water, ease of management, and accessibility and simplicity of its parts, and also for its durability, it is unsurpassed by any other. These Wheels are economical of water at both full and partial gate.

Risdon's Improved Turbine Water Wheel for the last few years has yielded the highest per centage of any wheel tested. All wheels are guaranteed to give the per centage of power, the number of horse-power represented, and to be well built, and in complete order when shipped.

Risdon's Register Gate Turbine Water Wheel.

PRICE LIST OF WHEELS.

DIAMETER.	PRICE.	INCHES VENTED.	DIAM. OF HOLES FOR DRAFT TUBE.
4 inches.	$175 00	2½	6½
6 "	200 00	3½	8½
8 "	225 00	5	10½
12 "	175 00	8	15
12 "	190 00	14	15
16 "	210 00	21	21
20 "	250 00	36	25
25 "	310 00	54	29
30 "	380 00	90	37
36 "	450 00	125	43
40 "	525 00	170	43
43 "	575 00	220	49
50 "	675 00	280	55
54 "	850 00	350	61
60 "	925 00	425	67
72 "	1300 00	650	79

Risdon's Improved Turbine Water Wheel.

PRICE LIST OF WHEELS.

DIAMETER.	PRICE.	INCHES VENTED.	DIAM. OF HOLES FOR DRAFT TUBE.
4 inches.	$220 00	2½	6½
6 "	250 00	3½	8½
8 "	275 00	5	10½
12 "	215 00	8	15
12 "	235 00	14	15
16 "	265 00	21	21
20 "	320 00	36	25
25 "	390 00	54	29
30 "	490 00	90	37
36 "	575 00	125	43
40 "	665 00	170	43
43 "	740 00	220	49
50 "	900 00	280	55
54 "	1100 00	350	61
60 "	1300 00	425	67
66 "	1550 00	520	73
72 "	1850 00	650	79
84 "	2400 00	850	91
96 "	3200 00	1100	101

The first three sizes—from 4 to 8 inches inclusive—in both the lists, Page 48, have gates, guides, and chutes of brass. On that account the prices of these sizes are higher in proportion than the prices of the other sizes.

In the tests made at the Centennial Exhibition, Risdon's Turbine Water Wheels stood highest, and gave results above all others exhibited.

HYDRAULIC RAMS.

Size of Ram.			Price, each
No. 2.	For a Spring or Brook which furnishes from	3 qts. to 2 galls. ₱ min.	$9 00
No. 3.	" " " " "	1½ to 4 " "	11 00
No. 4.	" " " " "	3 to 7 " "	14 00
No. 5.	" " " " "	6 to 14 " "	22 00
No. 6.	" " " " "	12 to 25 " "	40 00
No. 7.	" " " " "	20 to 40 " "	60 00
No. 10.	" " " " "	25 to 75 " "	150 00

These Rams are composed of Iron and Brass, and are durable, neat and compact. Other sizes to order. Small sizes of Glass, if desired.

All information of sizes of drive and discharge pipes, capacities, etc., furnished on application.

HYDRAULIC RAM ENGINE.

This Machine is designed for applying to a small stream or run, where there is some 3 or 4 feet fall, or more, by which it may be operated to force up another kind of water from that which drives it.

Thus it may be applied to a brook, and be operated by that to force up pure well or spring water, from another fountain. Being driven by one kind, and at the same time forcing up another kind of water, rendering it of value where there is a running stream, with some fall, near a fine spring or well, as by the application of this machine all the water from the spring or well may be forced up to any point required for use.

With 5 feet fall applied as driving power from the brook or run, it will raise through the suction pipe some 10 to 15 feet high, and force the pure water up an elevation of some 25 or 30 feet above the Pump, about 1½ pints per minute. It will force greater heights in less proportion, and less heights in greater proportion.

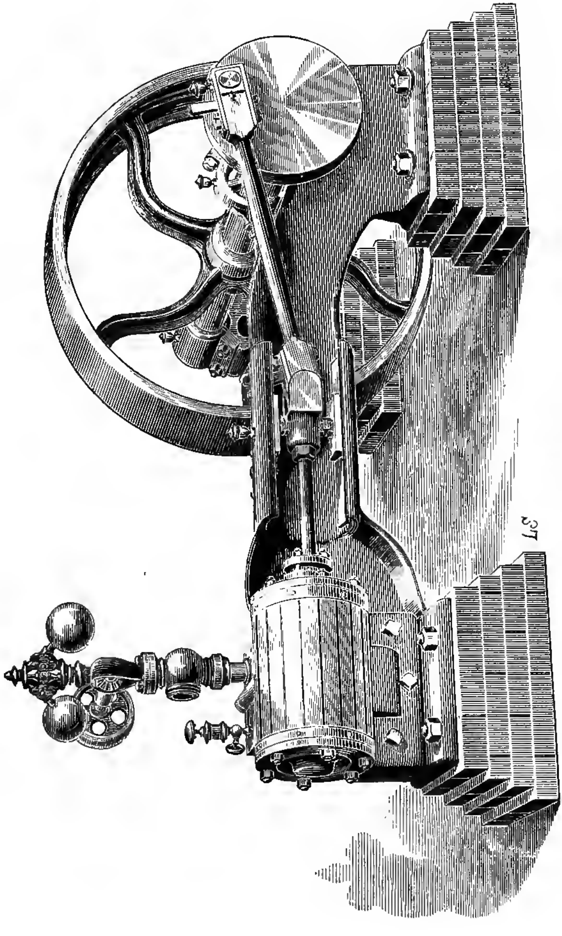
Price, adapted for 1½ inch Drive Pipe, 1 inch Suction Pipe to Pump, and 1½ inch discharge to same, each $40 00.

BIGELOW STEAM ENGINES AND BOILERS.

We are prepared to furnish all these celebrated Engines, as follows, and at the shortest notice.

STATIONARY ENGINES, WITHOUT BOILERS.—Plate No. 1.

Horse Power.	Diameter of Cylinder. Inches.	Length of Stroke. Inches.	BALANCE WHEEL.		Revolutions per Minute.	Weight. Pounds.	Price at Works.
			Diam. Inches.	Face. Inches.			
6	5	7	26	6½	230	650	$200 00
8½	6	8	28	7	190	900	250 00
12 to 15	8	12	38	8½	125 to 150	1,700	325 00
20	9	12	48	10½	150	2,000	400 00



STATIONARY ENGINE.—Plate I.

SEMI-PORTABLE VERTICAL ENGINE.

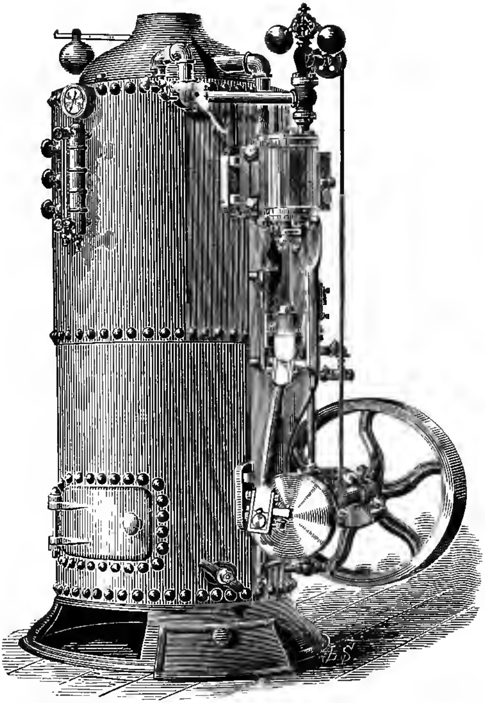
ENGINE AND BOILER COMBINED.—Plate No. 2.

ENGINE.						BOILER.							
Horse Power.	Diameter of Cylinder. Inches	Length of Stroke. Inches.	BALANCE WHEEL		Revolut's per min.	Diameter. Inches.	FIRE BOX.		TUBES.			Weight. Pounds.	Price at Works.
			Diameter. Inches.	Face. Inches.			Diameter. Inches.	Height. Inches.	Number of Tubes.	Diameter. Inches.	Length. Inches.		
6	5	7	26	5½	230	27	23	24	38	2	48	2,025	430 00
7	6	8	28	6½	160	30	25	24	38	2	54	2,430	520 00
8½	6	8	28	6½	190	32	28	24	44	2	54	2,600	580 00
12	8	12	38	8½	125	36	30	24	65	2	60	4,400	775 00
15	8	12	38	8½	150	40	34	30	78	2	60	5,150	850 00
20	9	12	48	10	150	44	40	30	90	2	66	6,000	980 00

We will furnish Engine, Plate No. 1, and an Upright Tubular Boiler, together with Heater, Feed Water Pump, 20 feet of Steam Pipe, 20 feet of Exhaust Pipe, 30 feet of Feed Water Pipe, with all of the Cocks and Valves necessary for connecting the same, and if parties purchasing will give the exact position of Engine and Boiler, we will cut and fit the pipe, so that they can be set up and connected by any ordinary mechanic, without difficulty.

Price of Engine and Boiler complete, with all the fittings, as per above:

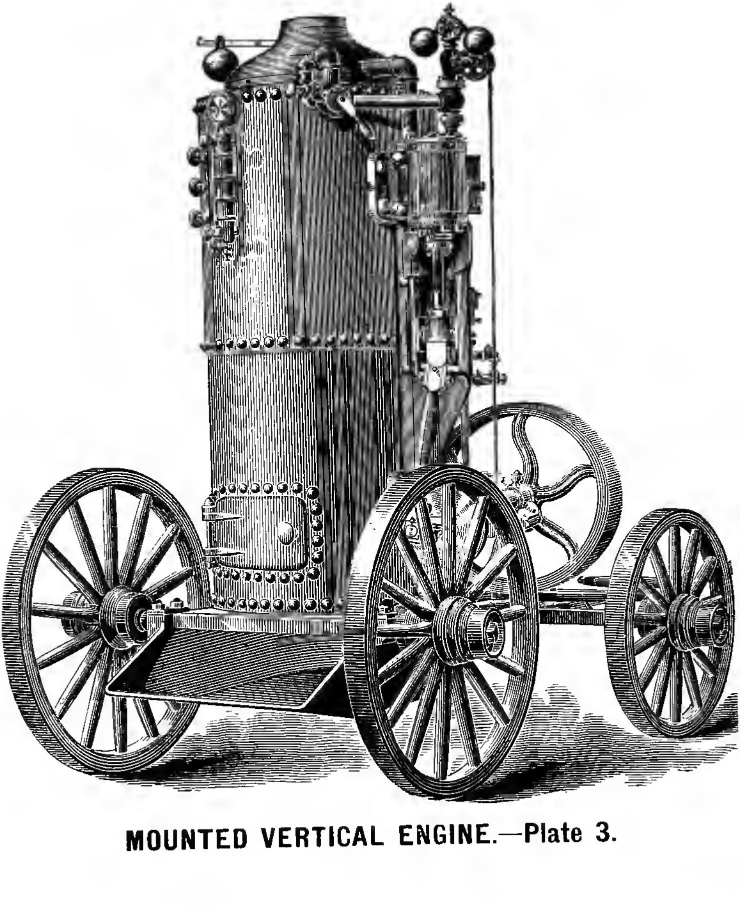
6 Horse Power, $430 00. 8½ $580 00. 12 $775 00. 15 $830 00. 20 $980 00.



SEMI-PORTABLE VERTICAL ENGINE.—Plate 2.

MOUNTED VERTICAL ENGINE.—Plate No. 3.

ENGINE.						BOILER.							
Horse Power.	Diameter of Cylinder. Inches.	Length of Stroke. Inches.	BALANCE WHEEL		Revolut's per min.	Diameter Inches.	FIRE BOX.		TUBES			Weight. Pounds.	Price at Works.
			Diameter Inches.	Face. Inches.			Diameter Inches,	Height. Inches	No.	Diameter. Inches.	Length Inches.		
6	5	7	26	5½	230	27	23	24	38	2	48	2,600	500 00
7	6	8	28	6½	160	30	25	24	38	2	54	3,100	575 00
8½	6	8	28	6½	190	32	28	24	44	2	54	3‘300	640 00
12	8	12	38	8½	125	36	30	24	65	2	60	5,300	835 00
15	8	12	38	8½	150	40	34	30	78	2	60	6,100	925 00
20	9	12	48	10	150	44	40	30	90	2	66	6,800	1100 00



MOUNTED VERTICAL ENGINE.—Plate 3.

PORTABLE ENGINE.—Plate No. 4.

ENGINE.						BOILER.										
Horse Power.	Diameter Cylinder Inches.	Length of Stroke. Inches	BALANCE WHEEL		Revolut's per min.	Diameter Waist. Inches.	FIRE BOX.			TUBES.			Weight on Skids.	Price on Skids, no Wheels.	Weight Mounted on Wheels.	Price Mounted on Wheels
			Diameter. Inches.	Face. Inches.			Length. Inches.	Width. Inches.	Height. Inches.	No.	Diameter. Inches.	Length. Inches.				
6	5	7	26	5½	230	27	36	22	26	15	3	60	3,200	570	3,650	650
8½	6	8	28	6½	190	30	36	25	28	20	3	60	3,900	710	4,350	800
12	8	12	38	8½	125	34	39	28	30	28	3	66	5,850	890	6,350	1000
15	8	12	38	8½	150	36	42	29½	34	30	3	72	6,500	980	7,000	1100
20	9	12	48	10	150	40	48	33	36	39	3	72	7,400	1160	8,000	1300

This is as good a Portable Engine as is built in this country, and the very low prices that we have placed them at, gives the purchaser the benefit of the great reduction in the price of labor and material. The above prices include Heater, Pump, Smoke Stack, Pole and Whiffletrees, and in fact, everything complete, ready to run. If desired, we will put smaller tubes in the Boiler, sufficient in number to give the same amount of heating surface, at the same price. Every boiler is inspected by the inspector of the Hartford Steam Boiler Inspection and Insurance Company, and a policy furnished by said company to each purchaser, for one year, free.

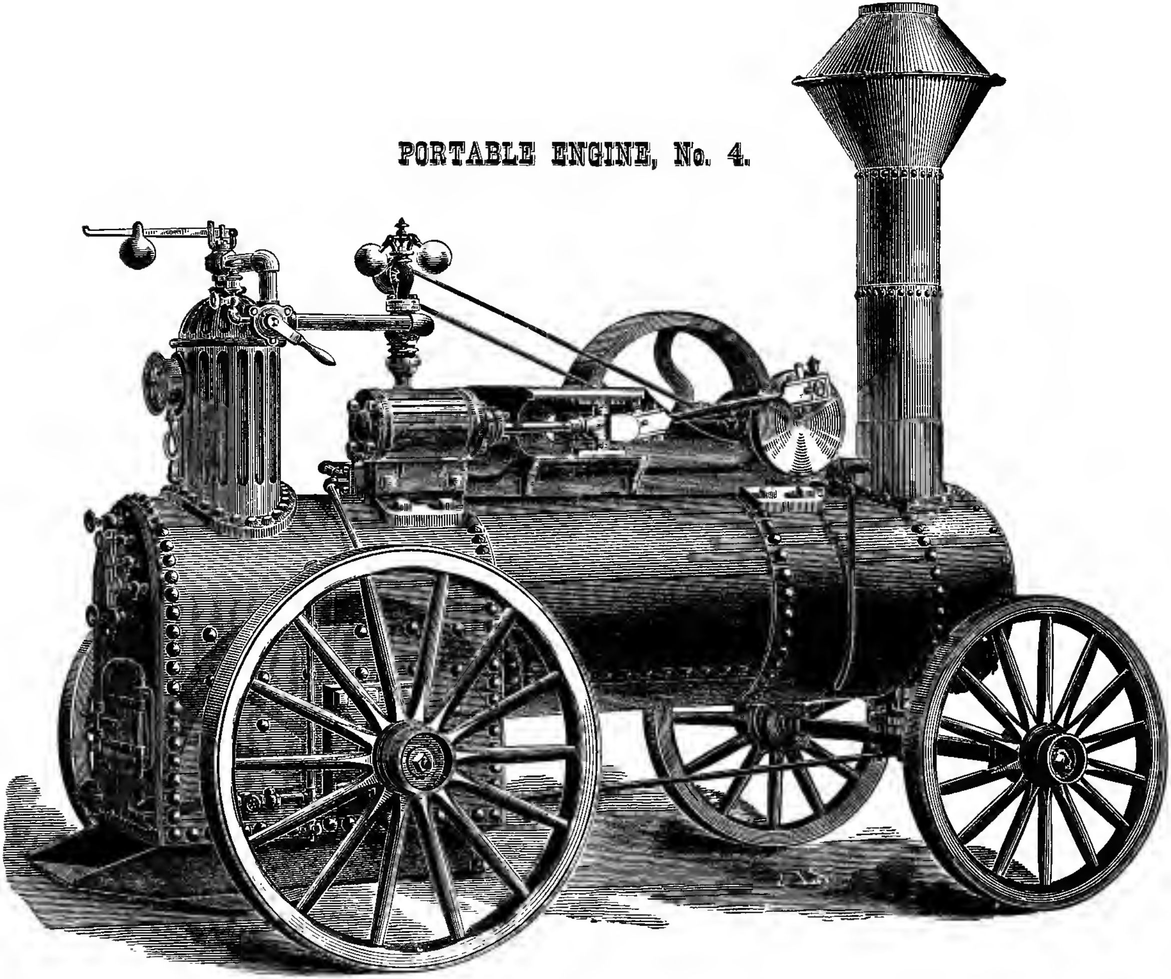
We will furnish a Boiler like boiler of Plate No. 4, and an Engine like Plate No. 1, together with Heater, Feed Water Pump, 20 feet of Steam Pipe, 20 feet of Exhaust Pipe, 30 feet of Feed Water Pipe, with all of the Cocks and Valves necessary for connecting the same, and if parties purchasing will give us the exact position of Engine and Boiler, we will cut and fit the pipe so that they can be set up and connected by any ordinary mechanic, without difficulty.

Price complete, for Engine and Boiler, with all the fittings, as per above.

6 Horse Power, $570 00. 8½ H. P., $710 00. 12 H. P., $890 00. 15 H. P., $980 00. 20 H. P., $1,160 00.

Judson's Patent Governor with all our Engines. Boxing extra, at cost.

PORTABLE ENGINE, No. 4.



UPRIGHT TUBULAR BOILERS.—Plate 2

Complete, with Cast Iron Base, Smoke Bonnet and Grate, Steam Gauge, Glass Water Gauge, Safety Valve, Gauge Cocks and Blow-off Cock.

Horse Power.	Diam. Inches	FIRE BOX.		TUBES.			Weight Pounds.	Price at Works.
		Diam. Inches.	Height In.	No. of Tubes.	Diam. Inches.	Length In.		
4	24	18	18	28	2	48	1050	160 00
6	27	22	24	38	2	48	1450	200 00
7	30	25	24	38	2	54	1700	240 00
8	32	28	24	44	2	54	1850	265 00
12	36	32	24	65	2	60	2600	320 00
15	40	36	30	77	2	60	3350	375 00
20	44	40	30	90	2	66	4100	430 00
25	48	40	30	95	2	72	4550	500 00

LOCOMOTIVE BOILERS.

Complete, with Dome, Grate Bars, Safety Valve, Gauge Cocks and Blow-off Cock.

		FIRE BOX.			TUBES.				
Horse Power.	Diameter of Waist. Inches.	Length. Inches.	Width. Inches.	Height. Inches.	Number of Tubes.	Diameter. Inches.	Length. Inches.	Weight. lbs.	Price at Works.
4	24	30	20	22	16	2	48	2,050	275 00
6	24	36	20	22	24	2	54	2,450	305 00
8	30	36	24	24	36	2	54	3,100	375 00
12	30	39	24	24	57	2	60	3,500	415 00
15	34	39	30	26	58	2	66	4,100	480 00
20	38	42	34	32	64	2	72	4,800	530 00
25	40	42	36	33	70	2	84	5,500	610 00
30	42	48	37	42	36	3	120	6,500	700 00
40	48	48	42	48	43	3	144	8,000	900 00
50	48	60	42	48	54	3	144	10,000	1100 00
60	54	60	48	51	60	3	154	12,200	1335 00

RETURN TUBULAR BOILER.

Complete, with Front properly fitted, Grate Bars, Binder Bars, Back and Side Doors, Anchor Bolts, Safety Valve, Gauge Cocks and Blow-off Cock.

Horse Power.	Diameter. Inches.	Length. Feet.	Number of Tubes.	Diameter of Tubes. In	Length of Tubes. Ft	Weight. Lbs.	Price at Works.
20	36	13	22	3	12	5,600	
25	36	13	26	3	12	6,200	
30	36	16	26	3	15	6,700	
40	42	16	36	3	15	8,800	
50	50	16	48	3	15	14,000	
60	54	16	60	3	15	15,500	
65	54	16	66	3	15	17,000	
85	60	19ft8in	70	3	18	20,800	

This style of Boiler is one of the most economical in fuel, and in general running expenses. The heat passes under the Boiler (the same as in a plain Cylinder Boiler) and returns through the tubes into a smoke-chamber, in front, and from thence into the stack, or they will be made to pass the heat back over the top of the Boiler to the stack. All Boilers of 48 inches diameter and upwards, the longitudinal seams are double riveted ; made of the best material, and submitted to a hydraulic pressure of 150 pounds to the square inch, before leaving the works. Prices upon application. Any other sizes than the above manufactured.

All kinds of Boilers, Tanks, and Plate Iron work of every description, done in the best manner, and at low prices.

Steam Vacuum and Hydraulic Gauges.

STEAM AND VACUUM. HIGH OR LOW PRESSURE.

Size.							Price, each.
No. 1.	Brass Case,	deep case,	10	inch	Dial,	Engraved,	$50 00
No. 1.	"	shallow "	10	"	"	Plain,	40 00
No. 2.	"	deep "	8½	"	"	Engraved,	45 00
No. 2.	"	shallow "	8½	"	"	Plain,	30 00
No. 3.	"	deep "	6¾	"	"	Engraved,	35 00
No. 3.	"	shallow "	6¾	"	"	Plain,	25 00
No. 3½.	Iron Case,		6¾	"	"		16 00
No. 4.	Brass Case,		6	"	"		20 00
No. 5.	"		5½	"	"		18 00
No. 6.	Iron Case,		6	"	"		14 00
No. 7.	"		5½	"	"		10 00
No. 8.	Brass Case,		4½	"	"		10 00
No. 8½.	Iron Case,		4½	"	"		10 00
No. 9.	Brass Case,		3½	"	"		10 00
No. 9½.	Iron Case,		3½	"	"		10 00

WATER AND STEAM GAUGES.

Size.						Price, each.
A, No. 1.	Brass Case,	10 in.	Dial,	Elastic Ring,		$42 00
A, No. 2.	"	8½	"	"		32 00
A, No. 3.	"	6¾	"	"		22 00
No 3½.	Iron Case,	6¾	"	"		18 00
A, No. 4.	Brass Case,	6	"	"		18 00
A, No. 5.	"	5½	"	"		16 00
No. 5.	"	5½	"	"	Nickel-plated,	20 00
No. 6.	Iron Case,	6	"	"		16 00
No. 7.	"	5½	"	"		12 00
No. 8.	Brass Case,	4½	"	"	Nickel-plated,	13 00
No. 8.	"	4½	"	"		10 00

This Gauge is provided with an Elastic Ring, upon which the glass rests, and the ring being screwed on, communication with the interior is cut off from all moisture, dust or air, thus protecting the interior from all damage from these elements.

It is not affected by frost in any climate, nor does the hand vibrate from any jar. These Gauges are specially adapted for Locomotive, Steam Fire Engine and Portable Engine use. Dials marked "Steam," with graduations of pressure, to 140 or 160 pounds, as required. Dials marked "Water," with graduations of pressure to 240 or 260 pounds, as required.

“ALLEN” PATTERN STEAM GAUGE.

Size.				Price, each.
No. 1.	6¾ inch,	Brass Case,	Locomotive	$18 00
No. 2.	6 “	“	Stationary,	16 00
No. 3.	6 “	Iron Case,	“	12 00
No. 4.	5½ “	“	“	10 00
No. 5.	5½ “	Brass Case,	“	12 00
No. 6.	4½ “	“	“	10 00
No. 7.	4½ “	Iron Case,	“	8 00

PYRO STEAM GAUGE.

Size.			Price, each.
No. 1.	Brass Case,	6¾ inch Dial,	$25 00
No. 2.	Iron Case,	6¾ “ “	20 00
No. 3.	Brass Case,	6 “ “	20 00
No. 4.	Iron Case,	5 “ “	18 00
No. 5.	Brass Case,	4½ “ “	12 00
No. 6.	“	3½ “ “	12 00

The Pyro Gauge not only indicates the Steam Pressure, but also its Temperature. When used in connection with Steam Engines and Boilers it is a great incentive to economy. It is very beneficial to all who use steam power for Brewing, Heating, Baking, Boiling, Distilling, Calendering, and many other purposes for which steam is used for its heat, and not for its pressure alone. In many cases a certain amount of heat is required, all superfluous heat being dangerous, or at least waste, and as a correct Indicator for such purposes, *dispensing with the thermometer*, which is often broken, and is a source of annoyance and trouble, this Gauge will be found valuable.

CHEAP GAUGES.

To meet the wants of Builders of Small Steam Engines, Hoisting Machines, Soda Fountains, Beer Pump Apparatus, &c. Orders will be filled for the following Cheap Gauges.

5 in.,	Iron Case Gauge, which will be found reliable,	$42 00	⅌ doz.
3½ in.,	“ “ “ “ “	42 00	“
5 in.,	“ “ Nickel-plated Ring, “	60 00	“

No orders for less than one dozen at one time will be filled at these rates. Cock furnished with all gauges. For Name on Dial, $3 00 per dozen, extra.

SMALL STEAM GAUGES.

For use where larger gauges are inconvenient or unsuitable.

Diameter of Dial only 2¼ inches, Brass Case, price each, $10 00

HYDRAULIC GAUGES.

From 500 to 16,000 pounds. Prices from $25 00 to $100 00.

ASHCROFT LOW-WATER DETECTOR.

The only Alarm without Valves, Springs, Floats, Cranks, or other moving machinery.

No. 2.	Ball and Pipe, Brass,	$30 00
No. 3.	" " Iron,	25 00

GLASS WATER GAUGES.—For Steam Boilers.

Complete, ready to attach to boiler, from $8 00 to $30 00 each.

GLASS TUBES.—For Water Gauges.

Of all diameters and lengths.

Cast Iron Drain, Water and Smoke Pipes.

Size.	2	3	4	5	6	7	8	10	12	15
Per Foot.	35	40	50	65	75	1 25	1 50	2 50	3 50	5 00

DOUBLE HUB PIPE.

Size.	2	3	4	5	6
Per Length 5 feet.	2 25	2 50	3 00	4 00	5 00

QUARTER BENDS.

Size.	2	3	4	5	6	7	8	10	12	15
Price, each.	75	1 00	1 30	1 60	1 95	2 25	3 50	6 00	8 00	12 00

QUARTER BENDS.—With Outlets for Connections.

SIZE.	2	3	4	5	6
Price, each.	1 50	1 75	2 05	2 40	2 70

SIXTH BENDS.

SIZE.	2	3	4	5	6
Price, each.	75	1 00	1 30	1 60	1 95

EIGHTH BENDS.

SIZE.	2	3	4	5	6	7	8	10	12	15
Price, each.	65	75	1 15	1 40	1 70	1 95	3 00	4 00	7 00	10 50

DOUBLE HUB QUARTER BENDS.

SIZE.	2	3	4	5	6
Price, each.	1 25	1 50	1 80	2 10	2 45

LONG BENDS.—18 inches in the clear.

SIZE.	4	5	6
Price, each.	1 75	2 00	2 40

T BRANCHES.—Full Size or Reducing.

SIZE.	2	3	4	5	6	7	8	10	12	15
Price, each.	75	1 00	1 30	1 60	2 00	3 00	3 75	8 00	12 00	25 00

DOUBLE BRANCHES.—Full Size or Reducing.

SIZE.	2	3	4	5	6	7	8	10	12
Price, each.	1 60	1 95	2 25	2 60	4 00	5 00	6 00	11 00	14 00

Y BRANCHES.—Full Size or Reducing.

SIZE.	2	3	4	5	6	7	8	10	12	15
Price, each.	1 40	1 60	1 95	2 25	2 60	4 50	5 00	9 00	14 00	25 00

HALF Y BRANCHES.

Size.	4 inch, $1 95, each.	5 inch, $2 25, each.

DOUBLE Y BRANCHES.

Size.	2	3	4	5	6	8
Price each.	1 90	2 25	2 75	3 25	4 00	7 50

STRAIGHT SLEEVES.

Size.	2	3	4	5	6	7	8	10	12
Price, each......	65	75	90	1 00	1 15	1 30	1 60	3 00	5 00

THIMBLES.—To connect Traps to Pipe.

Size.	2	3	4	5	6
Price, each.	20	30	40	50	60

THIMBLES.—With Covers.

Size.	4	5	6	8
Price, each.	1 00	1 10	1 25	2 50

OFFSETS.

2 inch to Offset 2 inch,	$1 00	4 inch to Offset 12 inch,	$2 75
2 " " 4 "	1 25	4 " " 14 "	2 90
2 " " 6 "	1 40	4 " " 16 "	3 00
2 " " 8 "	1 50	4 " " 20 "	4 25
2 " " 12 "	1 75	5 " " 4 "	2 25
3 " " 4 "	1 50	5 " " 8 "	3 00
3 " " 8 "	1 75	5 " " 12 "	3 25
3 " " 12 "	2 10	5 " " 16 "	3 75
4 " " 4 "	1 75	6 " " 4 "	3 25
4 " " 6 "	2 10	6 " " 8 "	4 00
4 " " 8 "	2 40	6 " " 12 "	4 25
4 " " 10 "	2 60		

OFFSETS.—With Outlets for connecting 2 in. Pipe.

4	inch to Offset	4 inch,	$2 50			4	inch to Offset	12 inch,	$3 50
4	" "	6 "	2 85			4	" "	14 "	3 65
4	" "	8 "	3 15			4	" "	16 "	3 75
4	" "	10 "	3 35			4	" "	20 "	5 00

SINGLE HUB RETURN BENDS.

Size.	2	3	4	5	6	7	8	10	12
Price, each.	1 50	1 95	2 60	3 25	3 90	4 50	7 00	12 50	16 00

PIPE REST.—For Sustaining Iron Soil Pipe.

Size.	2	3	4	5	6	7	8	10	12
Price, each.	25	35	40	50	55	60	65	75	1 00

REDUCING PIECES.

Size.	4	5	6	7	8	10	12
Price, each	90	1 00	1 15	1 30	1 60	3 00	5 00

To reduce from the above sizes to any other sizes, from 10 inches down to 2 inches.

SINGLE HUBS.

Size.	2	3	4	5	6	7	8	10	12
Price, each..	30	40	45	60	70	90	1 00	1 50	3 00
Double Hubs.........	65	75	90	1 00	1 15	1 30	1 60	1 95	3 50
Saddle Hubs.........	75	1 00	1 25	1 50	1 75		2 50	3 00	3 50

BANDS, FOR PIPE.

Size.	2	3	4	5	6
Price, each..........	60	80	1 00	1 20	1 40
With Outlet	1 00	1 20	1 50	1 80	2 20

PIPE STOPPERS.

SIZE.	2	3	4	5	6	7	8	10
Price, each.	25	35	50	60	75	90	1 00	1 60

GREEN-HOUSE PIPE.

4 inch, Single Hub, per foot, 5 feet lengths,	50
4 " Double " " 5 "	60

Cast in 10 feet lengths, when so ordered.

GREEN-HOUSE FITTINGS.

SIZE 4 INCH.

Single Hub, Short Elbow	$1 30
" Long "	2 25
" " " Quick Bend	2 25
Plain Long Elbow	2 00
Double Hub, Quarter Bend	1 80
" Eighth "	1 50
Single Hub, " '	1 15
Double Hub, Return "	2 00
" " " with Hub back Outlet	2 50
" " " with Spigot back Outlet	2 50
Double Elbow	3 00
Cross-head Branch	2 75
Three Hub H Branch	2 75
Three-way Branch, with Hub back Outlet,	4 00
Triple Elbow, Hub ends	4 00
T Branch	1 75
Pipe Chairs, for 2 Pipes	45
" for 3 "	65
" for 4 "	75

CIRCULAR CAST IRON TANKS.

	Plain
6 feet 9 inches diameter, 2 feet deep	$90 00
6 feet 9 inches diameter, 4 feet deep	135 00
6 feet 9 inches diameter, 6 feet deep	180 00
6 feet 9 inches diameter, 8 feet deep	225 00

EXPANSION TANKS.

No. 1.	With 2 Outlets.	Height 32 inches.	Diameter 10 in.	$11 00
No. 1.	“ 3 “	“ 32 “	“ 10 in.	12 00
No. 1.	“ 4 “	“ 32 “	“ 10 in.	13 00
No. 2.	“ 2 “	“ 48 “	“ 10 in.	14 00
No. 2.	“ 3 “	“ 48 “	“ 10 in.	15 00
No. 2.	“ 4 “	“ 48 “	“ 10 in.	16 00

The above are made at any angle required, and larger sizes made to order.

TRAPS.—With Outlet or Heel on Side.

Size 4 in. S Trap, Half S, or 3–4 S Trap, each,	$4 00

4 in. with connection for 2 in. Pipe, with Outlet on right or left side, also, with Outlet on Heel.

IRON TRAPS.—Without Hand Openings.

S, 1–2 S, or 3–4 S. Size 4 inches	$3 25
Hopper Traps, S, ½ S, or ¾ S. Size 4 inches	3 50
“ “ with 2 inch Outlet S, ½ or ¾ S. Size 4 inches	4 25

HOPPERS.

	Plain.	Enameled.
Philadelphia Pattern	$2 25	$3 00
“ “ with lugs, for seat	3 00	4 50
Old Pattern, straight arm	2 00	4 00
English Hopper	2 25	4 25
Mott's Pattern	2 25	4 00
Short Hoppers	2 00	4 00

HOPPERS.—With Traps.

S, ½ S, or ¾ S, Plain $5 50. Painted $5 85. Enam. $ 8 00.

Short Hopper, with Lugs for Seat and Valve Attachment.

Plain $2 75. Painted $3 00. Enameled $4 75.

Hopper and Wash-Bowl.

Plain $5 00. Enameled $10 00.

Trap Moulds.—Half S and Full S.

1½ inch $6 00. 2 inch $6 00. 4 inch $10 00.

Hooks for Iron Soil Pipe.

SIZE.	2	3	4	5	6	8
Each.	15	20	20	25	30	85

SOLDER POTS.

Number	1	2	3	4	5	6	7
Diam. on Top.	5	6	6½	8	9	10½	13½
Price.	50	65	75	1 20	1 30	2 00	3 75

BAR SOLDER MOULDS.

2 Bars, 1 00. 4 Bars, 1 60. Sq. Bars, 2 00. ½ Rd. Bars, 3 00.

Leader Pipes, with or without Lugs.—Fluted.

3 in., $4 00. 4 in., $4 50. 5 in., $5 50. 6 in., $7 00.

Wrought Iron Bath Boilers.

CAPACITY.	SIZE.	PLAIN.	GALVAN'D.
18 Gallons.	3 feet by 12 inches.	10 75	14 05
21 "	3½ " 12 "	11 55	14 85
24 "	4 " 12 "	12 50	15 75
27 "	4½ " 12 "	13 25	17 50
30 "	5 " 12 "	14 05	19 00
36 "	6 " 12 "	19 00	24 35
35 "	5 " 13 "	15 75	20 75
24 "	3 " 14 "	14 05	19 00
28 "	3½ " 14 "	14 85	19 80
32 "	4 " 14 "	15 75	20 75
36 "	4½ " 14 "	16 50	21 50
40 "	5 " 14 "	18 25	24 00
48 "	6 " 14 "	24 00	29 75
42 "	4 " 16 "	19 00	25 75
52 "	5 " 16 "	23 25	30 60
63 "	6 " 16 "	29 00	38 00
53 "	4 " 18 "	25 00	31 50
66 "	5 " 18 "	28 00	36 00
79 "	6 " 18 "	33 00	44 00
82 "	5 " 20 "	34 00	45 50
98 "	6 " 20 "	42 00	54 00
100 "	5 " 22 "	42 00	54 00
120 "	6 " 22 "	49 00	63 00
120 "	5 " 24 "	47 50	61 50
144 "	6 " 24 "	54 00	70 00
168 "	7 " 24 "	65 00	84 00
192 "	8 " 24 "	75 00	95 00

Other sizes made to order.

Four Brass Couplings and Tube for each Boiler, when furnished, are $2 75 in addition to above prices.

Safety Valves, for Bath Boilers.

Per Dozen, $39 00.

BOILER STANDS.—On Legs.

Length of Legs, 16, 18, 20, 22, 24 and 30 inches.

Size of Ring.	12½	14	15	16	18	20	22
Price.	1 30	1 60	1 60	2 00	2 25	3 00	3 75

IMPROVED BOILER STANDS.—Height 21 in., with Foot.

Size of Ring.	12	13	14	15	16	18	20	22	24
Plain	2 00	2 05	2 10	2 25	2 40	3 00	3 75	4 25	5 00
Galvanized	3 50	3 60	3 75	4 00	4 25	5 00	7 00	8 00	9 00
Bronzed	2 50	2 55	2 60	2 75	3 10	3 75	4 50	5 00	5 75

Extension piece to raise Standard to 30 inches, 75 cts.

BOILER STANDS.—Fancy Patterns.

Size of Ring.	12	13	14	15	16	18	20	24
Plain	2 00	2 05	2 10	2 25	2 40	3 00	3 75	5 00
Galvanized	3 50	3 60	3 75	4 00	4 25	5 00	7 00	9 00

SQUARE SHALLOW SINKS.—With Ordinary Strainer, or Patent Trap.

Size.		Plain.	Galv.	Enam.
24 by 15½	4 inches deep	2 00	3 75	7 50
30 by 17½	4 “	2 90	4 75	8 00
36 by 19	4 “	3 50	6 00	9 75
42 by 20½	4 “	4 80	8 00	11 00
48 by 22	4 “	5 60	9 50	13 00
	Sink Strainers	1 50	2 75	3 75
	Plug “ “	3 00	4 50	6 00
	“ Couplings	1 50	2 00	

CORNER SINKS.

	Sides.	Front.	Depth.	Plain.	Galv.	Enam.
No. 1.	17 in.	25 in.	4½ in.	2 00	3 50	7 60
No. 2.	20 “	28 “	6 “	2 50	4 50	9 50
No. 3.	22 “	31 “	6½ “	3 15	5 40	10 75
No. 4.	18½ “	25 “	12 “	6 00	9 50	13 75

SQUARE SINKS.

Size.		Plain.	Galvanized.	Enameled.
16½ by 12½	5 inches deep.	$1 25	$2 40	$4 80
18 by 12	6 " "	1 60	3 05	5 35
16 by 16	6 " "	2 50	4 50	7 75
22 by 14	6 " "	2 10	3 85	7 60
23 by 15	6 " "	2 30	4 10	8 00
25½ by 15½	6 " "	2 50	4 85	8 25
20 by 12½	6 " "	1 90	3 70	6 40
20 by 14	6 " "	2 20	3 90	7 45
24 by 14	6 " "	2 50	4 80	7 90
24½ by 16	6 " "	2 70	5 30	8 30
24 by 18	6 " "	2 80	5 60	9 45
25½ by 17½	6 " "	2 80	5 45	8 95
27 by 15	6 " "	2 90	5 50	9 45
24 by 20	6 " "	3 25	6 00	9 75
28 by 17	6 " "	3 25	6 25	9 75
28 by 20	6 " "	3 50	6 45	10 25
30 by 16	6 " "	3 50	6 10	10 10
30 by 18	6 " "	3 75	6 75	10 75
30 by 20	6 " "	4 00	7 65	11 15
32½ by 18	6 " "	4 25	7 50	11 50
32½ by 21	6 " "	4 50	8 50	11 75
36 by 18	6 " "	4 75	8 75	12 75
36 by 21½	6 " "	5 40	9 45	13 25
38 by 20	6 " "	5 75	10 15	13 50
42 by 22	6 " "	6 25	11 75	14 75
48 by 20	6 " "	7 25	13 25	15 25
48 by 23	6 " "	7 50	14 10	17 15
30 by 24	8 " "	7 50	14 00	17 00
50 by 24	6½ " "	8 50	16 00	20 00
50 by 26	6½ " "	9 25	17 20	22 00
76 by 22	7 " "	21 00	35 00	
62 by 22	8 " "	13 00	21 75	31 00
56 by 32	9 " "	21 00	36 25	
78 by 28	10 " "	28 00	43 00	
94 by 24	10 " "	35 00	45 00	

SINK BOLTS.

Per Dozen, 75 cents.	Per Package, (100) $4 00.

HALF CIRCLE SINKS.

	Back.	Width.	Depth.	Plain.	Galv'd.	Enam'd.
No. 1.	24 inch.	14 inch.	6 inch.	2 50	4 25	9 50
No. 2.	27 “	14 “	6 “	3 15	5 30	10 70
No. 3.	8 “	16 “	8 “	3 50	6 05	11 50
No. 4.	31½ “	17 “	6 “	4 00	6 75	12 70

To Patent Over-flow Sinks, Square Corners and Half Circle, add to price $1 00.

SINK LEGS.

Plain, each, 60 cents. Galvanized, each, $1 00.

SINK BACKS.

Size.	Plain.	Galv'd.	Enam'd.
20 inch	$1 50	$2 50	$3 00
22 “	1 65	2 65	3 25
23 “	1 70	2 70	3 35
24 “	1 75	2 75	3 50
25½ “	1 85	3 50	4 00
27 “	2 00	4 00	4 25
28 “	2 25	4 25	4 50
30 “	2 50	4 75	5 00
32½ “	2 75	5 00	5 25
36 “	3 25	5 75	5 75
38 “	3 50	6 25	6 50
42 “	3 75	6 50	6 75
48 “	4 25	7 00	7 50
No. 1. Corner Sink Back	3 25	5 75	6 00
No. 2. “ “ “	3 75	6 50	7 00
No. 3. “ “ “	4 25	7 00	8 00
No. 4. “ “ “	4 50	7 25	8 50

SLOP SINKS.

Size.	Plain.	Galv'd.	Enam'd.
16 by 16......10 inch deep	$3 50	$6 75	$8 50
20 by 14......12 “	3 75	7 25	11 75
20 by 16......12 “	4 80	8 50	13 00
24 by 20......12 “	6 00	10 40	15 00
23 by 15......15 “	6 00	10 40	14 00
36 by 21......12 “	14 00	22 00	30 00
36 by 21......16 “	19 00	28 00	40 00
48 by 20......17 “	22 00	37 00	50 00

SINKS.—With Legs and Backs Complete.

SIZE.		PLAIN.	GALVAN'D.	ENAMEL'D.
30 by 22	....	12 50	22 00	24 00
36 by 22	....	15 00	26 00	28 00
42 by 22	....	16 50	29 00	32 00
48 by 22	....	18 00	32 00	38 00

SINKS, FANCY PATTERN.—With Legs and Backs Complete.

SIZE.		PLAIN.	GALVAN'D.	ENAMEL'D.
30 by 22	....	16 50	25 50	28 00
36 by 22	....	18 00	29 00	32 00
42 by 22	....	21 00	33 00	38 00
48 by 22	....	25 00	39 00	45 00
30 by 22	Without Back...........	10 50	18 00	19 00
36 by 22	" "	12 00	21 00	22 00
42 by 22	" "	14 00	24 00	26 00
48 by 22	" "	16 50	27 50	31 50

30 in. BACKS.—With Air-Chambers.

		PLAIN.	GALVAN'D.	ENAMEL'D.
	Pipe and Coupling Comp.	8 25	11 25	13 00
36	" " "	9 00	12 00	14 00
42	" " "	9 50	13 00	15 00
48	" " "	10 00	14 50	16 50
	Legs, each,	1 75	2 25	

SLOP SINK.—With 4 in. Outlet in Centre.

22 by 20 Plain, $5 75. Galvanized, $10 25. Enameled, $14 50.

COPPER SINKS.

SIZE.	12x18	12x20	14x16	14x20	14x24	16x24	16x30	18x30
Square.........	4 50	5 00	4 50	6 00	7 00	8 00	10 00	11 00
Oval	5 00	5 50	5 00	6 50	8 00	9 00	11 00	12 00

IRON SINK TRAPS.

Half, Three-quarters, or Full S, each, $1 75.

PRIVY SINKS.

No. 1.	4	feet long,	17	inches wide		$21 00
	4½	“	17	“		22 50
	5	“	17	“		25 00
	6	“	17	“		27 50
	7	“	17	“		32 00
	8	“	17	“		37 50
	9	“	17	“		42 50
	10	“	17	“		46 25
	11	“	17	“		50 00
	12	“	17	“		55 00
	13	“	17	“	in two Sections	59 50
	14	“	17	“	“ “	64 00
	15	“	17	“	“ “	69 50
	16	“	17	“	“ “	76 00
	17	“	17	“	“ “	80 00
	18	“	17	“	“ “	82 50
	19	“	17	“	“ “	87 00
	20	“	17	“	“ “	92 50
	21	“	17	“	“ “	97 50
	22	“	17	“	“ “	101 25
	23	“	17	“	“ “	105 00
No. 2.	6	“	31	“		42 50
	7	“	31	“		46 25
	8	“	31	“		50 00
	9	“	31	“		55 00
	10	“	31	“		58 75
	11	“	31	“		62 50
	12	“	31	“		68 75
	13	“	31	“	in two Sections	88 75
	14	“	31	“	“ “	92 50
	15	“	31	“	“ “	96 25
	16	“	31	“	“ “	100 00
	17	“	31	“	“ “	105 00
	17½	“	31	“	“ “	111 25

PRIVY SINKS.—With Patent Lever Attachment.

To price of ordinary No. 1 Sink, add to each,	$2 25
" " No. 2 " " "	3 00

NEW PATTERN SINK.

		PLAIN.	GALVAN'D.
30 by 22		16 50	25 50
36 by 22		18 00	29 00
42 by 22		21 00	33 00
48 by 22		25 00	39 00
30 by 22	Without Backs	10 50	18 00
36 by 22	" "	12 00	21 00
42 by 22	" "	14 00	24 00
48 by 22	" "	16 50	27 50

The back is fitted with Air-Chambers, which are cast separately and bolted on, so that they can be replaced without destroying the entire back, should any breakage happen through freezing of the pipes.

The Air-Chambers are accurately fitted with wrought iron pipes and brass couplings.

The waste passes off through one of the legs, which may be either right or left, as desired, and when the waste pipe cannot be carried under the floor, the strainer can be made to order, in the center of the sink, and furnished with the ordinary coupling.

IRON BATH TUBS.—With Patent Overflow.

No. 1	5½ feet long,	Painted,	$21 00		
No. 2	6 "	"	23 00		
French Pattern, No. 1.	4½ "	"	17 00	Enam.	$33 00
No. 2	5 "	"	19 00	"	36 00

Coupling for Iron Pipe, extra 75 cents. Holes cast in end for Cocks, if required.

PATENT OVERFLOW TUB.—For Asylums.

No. 1.	5½ feet long	Painted,	$22 50
No. 2.	6 "	"	24 50

With Coupling, for Iron Pipe, extra, 75 cents.

URINALS FOR PUBLIC PLACES.—With Backs.

	Plain.	Painted.	Galvanized.	Enameled.
No. 1........	10 50	11 75	19 50	23 00
No. 2........	12 50	14 00	23 00	27 00

CORNER URINALS.

	Plain.	Painted.	Galvanized.	Enameled.
No. 1. 7 inches on side	1 25	1 60	2 00	2 40
No. 2. 9 " "	1 60	1 90	2 50	3 15
No. 3. 12 " "	2 00	2 30	3 25	3 85

HALF CIRCLE URINALS.

	Plain.	Painted.	Galvanized.	Enameled.
No. 1. 12 inches on Back	1 60	1 90	2 50	3 50
No. 2. 15 " "	2 00	2 30	3 25	3 85

URINAL TROUGH.—With or without Back.

Plain per foot..........	$2 00.	Galvanized per foot..........	$3 25.
Plain Backs, per foot,	1 00.	" Backs, per foot,	1 50.

IRON WASH STANDS.—CORNER.

Patent Overflow and Rubber Plug.

Plain Iron Slab and Frame, without Cocks,	$14 00
Painted " " " "	15 00
Galvanized " " plain iron, without Cocks,	18 50
Enameled " " " " "	21 50
" " " bronzed " "	23 00
" " " marbleized, " "	25 00

PATENT HALF-CIRCLE WASH STANDS.

Patent Overflow and Rubber Plug.

Plain Slab and Frame, without Cocks,	$18 00
Painted " " " " -	19 00
Galvanized Slab and Frame, plain iron, without Cocks,-	22 00
Enameled " " " " "	26 00
" " " bronzed, " "	28 00
" " " marble'd, " "	32 00

HALF-CIRCLE WASH STANDS.—On Standard.

Patent Overflow and Rubber Plug. Standard Inlaid with Tile.

Plain $10 50. Painted $11 50. Galvanized, $15 50.
Enameled, with Standard, $16 50.

Enameled Slab and Bowl, with Nickel and Tile Ornaments, Standard Bronzed and Inlaid with Tile, $19 50.

HALF CIRCLE WASH STANDS.

Plain, $12 50. Painted, $13 50. Galv., $17 50. Enam., $18 50.

HALF-CIRCLE WASH STAND.—On Standard.

With Patent Overflow and Rubber Plug, Enameled Slab and Bowl with Nickel and Tile Ornaments, Standard Bronzed, and Inlaid with Tile, $21 50.

CORNER WASH STAND.—On Standard.

Patent Overflow and Rubber Plug. Standard Inlaid with Tile

	Plain.	Painted.	Galvanized.	Enameled.
	10 50.	11 50	15 50	16 50
Half-Circle	12 50	13 50	17 50	18 50
"	7 00	7 50	10 00	12 00
'	7 75	8 75	13 00	14 50
Single	7 75	8 75	13 00	14 50
Double..............	17 00	18 00	25 00	29 00
Single, on Frame,	6 25	7 00	11 50	13 75
Double "	14 00	15 00	22 00	26 00

SECTIONAL SLABS AND BOWLS.

Patent Overflow and Rubber Plugs.

	Plain.	Galvanized.	Enameled
Price per Section....	7 50	12 00	15 00
Side Pieces to match Back.............	1 50	2 50	3 00
Brackets to support Slabs and Bowls.	1 00	1 50	
Draped, per Section	9 00	13 50	16 50
" Side Pcs to match Back & Bowls	1 50	2 50	3 00
" Brackets to support Slabs.........	1 00	1 50	

SECTIONAL WASH STANDS.—On Standards.

Patent Overflows and Rubber Plugs.

	Plain.	Galv'd.	Enam'd.
Price per Section, including Standard,	$10 00	$14 50	$17 50
Side Piece to match Back	1 50	2 50	3 00

IRON SLABS AND BOWLS.—Half-Circle or Corner.

Patent Overflow and Rubber Plug.

Plain, $4 50 | Painted, $5 00 | Galvanized, $7 50 | Enam'd, $9 50

HALF-CIRCLE SLAB AND BOWL.

Patent Overflow and Rubber Plug.

	Plain.	Painted.	Galv'd.	Enam'd.
	8 00	8 50	12 00	16 00
Corner Slab and Bowl...	7 50	8 00	11 50	15 00

WASH BASINS.

Size, Outside Measure,	12	14	15	16
Plain	1 00	1 30	1 60	2 00
Painted..................	1 30	1 60	1 90	2 35
Enameled................	2 50	2 80	3 15	3 85

Oval Closet Bowl..................	Plain, $1 60	Enameled, $4 00
Round French Closet Bowl.....	" 1 60	" 3 50

SLOP SINKS.—With Hopper Attached.

	Plain.	Galvanized.	Enameled.
24 by 20.........12 inches.............	8 25	12 75	17 00
30 by 20.........12 "	13 50	21 50	26 75
36 by 21........ 12 "	16 75	24 75	30 00

SLOP HOPPERS.

	Plain.	Galvanized.	Enam'd.
With Wooden Cover....................	4 75	7 00	7 50
Without Cover.................	3 50	5 75	6 25

WASH TUBS.

Complete, without Wooden Covers, Galv., $18 00 Enam., $19 50

BATH TUB CONNECTIONS.—For Overflow and Waste.

2 inches, $1 50.

IRON TRAPS.

	S Trap.	½ S Trap.	¾ S Trap.
Size, 2 inches.............	1 95	1 95	1 95
" 3 "	2 25	2 25	2 25
" 4 "	3 25	3 25	3 25

RUNNING TRAP.—With Opening for Cleaning Out.

SIZE.	2	3	4	5	6	7	8	10
Price.	1 95	2 25	3 25	4 00	5 25	7 25	10 00	20 00

HYDRANT CESSPOOLS.

12 by 12..................	6 inches deep	....	$1 25
14 by 14..................	6 " "	....	1 50
16 by 16.......	6 " "	....	2 00
18 by 18..................	6 " "	....	2 50
12 by 12..................	6 " "	With Bell Trap..........	3 50
14 by 14..................	6 " "	" "	3 75
16 by 16..................	6 " "	" "	4 25
18 by 18..................	6 " "	" "	4 75

OPEN TOP CESSPOOLS.—With Bell Trap.

13 inches, Square, each, $6 00.

PLAIN CESSPOOLS.

Round, $2 75. Square, 13 by 13, $2 25.

CESSPOOLS.—With Bell Trap.

Light............	13 by 13...........	$3 25
Medium.........	13 by 13..	4 00
Heavy............	13 by 13..	5 00
Extra Heavy...	24 by 24 for Markets	19 00
Heavy...........	16 by 16 for Stables, &c.......	5 00

STENCH TRAP.

Diameter on Top, 6 inches, $1 60.

CESSPOOL PLATES.

Square, 6 by 8, with Bars	75
" 6 by 8, " Round Holes	75
Round, 6 inches diameter	50
" 12 " "	1 50

CESSPOOL PLATES.—Square, with Holes or Bars.

4 by 4	25	7½ by 7½	70
5 by 5	35	8 by 8	85
6 by 6	50	9 by 9	1 00
7 by 7	60	10 by 10	1 25

O'NEILL'S PATENT JOINT.

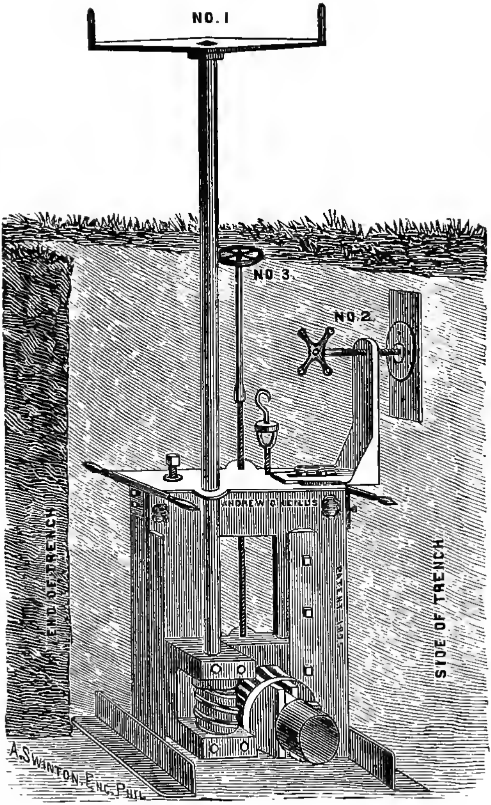
FOR WATER AND GAS PIPE.

We beg leave to call the special attention of those having the management of Gas and Water Works, to this valuable invention.

All who have investigated this joint, have been convinced that it is a progressive movement of substantial merit, and that it must soon be adopted in pipe-laying, in consequence of its essentially meritorious features.

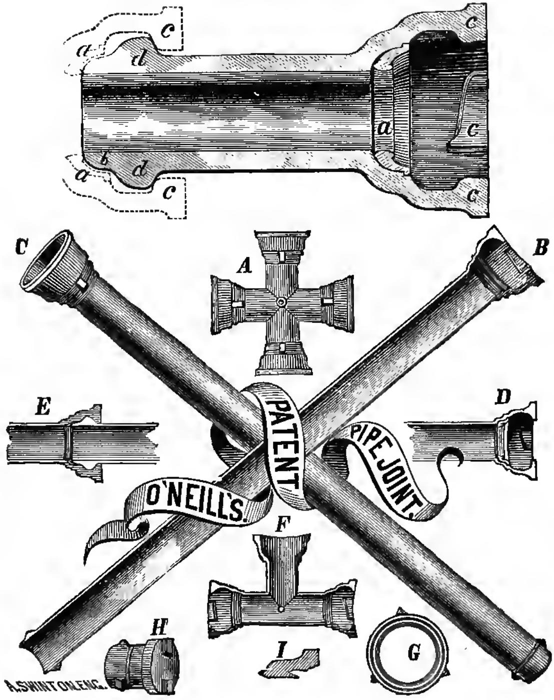
In point of economy in expense of laying and jointing, it surpasses all others. A much less amount of excavation is required than in the old manner of doing this work. A small amount of lead only is required for each joint, and the leaden rings are prepared before commencing the work of pipe-laying. No hemp or other like material is required for gasketing, and the usual expensive methods of laying pipe are dispensed with.

We trust that this excellent device will receive the serious consideration of all parties interested in pipe-laying. We will be very happy to reply to all communications relating to this improvement, and will fill all orders for pipe and pipe-laying, in the promptest manner, and will guarantee all work, in all respects.



O'NEILL'S PATENT PIPE JACK.

FOR LAYING PIPE.



O'NEILL'S PATENT JOINT AND CAST IRON WATER AND GAS PIPE.

O'NEILL'S PATENT JOINT AND CAST IRON WATER AND GAS PIPE.

This joint requires no hot lead, and no caulking. Can be deflected 25 degrees without causing a leak. The cost is about the same as common pipe, and can be laid at much less expense in excavations and in time of making the joint.

A medal was awarded this joint at the Centennial Exhibition, as the best in the above particulars, and embracing these qualities: Security, Cheapness, Flexibility, Expansion and Contraction, and self-adjusting features.

We have made arrangements with the Patentee, to make all sizes of this pipe, and will contract to furnish and lay it in any part of the country.

I. S. CASSIN & CO.

HYDRAULIC & GAS ENGINEERS,

WILL CONSTRUCT

Water Works and Gas Works; furnish Drawings, Specifications and Estimates for Works, make preliminary and all other surveys, examinations and investigations; Waters analyzed and reports made on their fitness for domestic, manufacturing and other uses.

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Mr. Isaac S. Cassin, of our firm, formerly Chief Engineer of the Water Works, and also formerly an Engineer of the Gas Works of Philadelphia, has had an extensive experience in the construction of Works of this character, and will refer to Works constructed by him at Chester, Oxford, Pottstown, Coatesville, West Chester, Louella, Phœnixville, Media, Conshohocken and Swarthmore, Pa., Wilmington and New Castle, Del., Ithaca, N. Y., and to many other places where Works have been enlarged and extended, or partially constructed by him.

We are prepared to do any description of work connected with either the construction of Gas or Water Works, and to send experienced Engineers or workmen to any part of the country. Will contract for the whole or any portion of works, and for repairs, additions and alterations. Repairs to Pumping Engines and Pumps, Pipe Laying, Setting Fire Hydrants, Stop Valves, &c., specially executed, and all descriptions of materials and supplies for both Gas and Water Works, furnished at the shortest notice.

Communications promptly answered.